Debi Prasanna Pattanayak

A Controlled Historical Reconstruction of Oriya, Assamese, Bengali and Hindi

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Most historical studies of Indo-Aryan linguistics have concentrated on the study of documents and inscriptions, providing a great deal of useful information. Yet many problems still remain. The evidence from the early inscriptions suggests that certain phonological changes had already taken place in the third century B.C., whereas Middle Indo-Aryan documents from a later period indicate no such changes. The development of the Old Indo-Aryan combination of a short vowel followed by two consonants into a combination of a long vowel followed by a single consonant in certain, as yet inadequately identified, languages requires further explanation. And whether or not the solution to this problem can be the basis for the establishment of the relationships between the various Indo-Aryan languages is itself still an unresolved question. Relatively little work has been done on the relationship of Indo-Aryan languages to each other, and Dr. Pattanayak's study is an attempt to illuminate the specific relationship of Assamese, Bengali and Oriya. That these three languages are very closely related has long been known but a precise statement concerning them has not previously been available.

The approach to these problems employed by Dr. Pattanayak is that of the comparative reconstruction of a proto-language from the modern languages without any reference to earlier documents. This is an approach to historical Indo-Aryan that has not often been used but is of considerable value in determining the particular connections between the earlier documents and the modern languages. Grierson, whose classification of inner and outer languages in Indo-Aryan is the last relevant contribution to the field, utilized the comparative method, but he did not make a reconstruction and he based his classification partly on typological data. Dr. Pattanayak has made a reconstruction and this method permits a determination of the relative chronology of phonological changes which in turn permits a more exact determination of language relationships.

Dr. Pattanayak's work is a very welcome one to Indo-Aryan studies both because it adds to our information about the relationship of Assamese, Bengali and Oriya and it makes use of a method that has been infrequent in Indo-Aryan studies.

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A CONTROLLED HISTORICAL RECONSTRUCTION OF ORIYA, ASSAMESE, BENGALI AND HINDI

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JANUA LINGUARUM

STUDIA MEMORIAE
NICOLAI VAN WIJK DEDICATA

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C. H. VAN SCHOONEVELD

INDIANA UNIVERSITY

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THE HAGUE · PARIS

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A CONTROLLED HISTORICAL RECONSTRUCTION OF ORIYA, ASSAMESE, BENGALI AND HINDI

by

DEBI PRASANNA PATTANAYAK

AMERICAN INSTITUTE OF INDIAN STUDIES, POONA

1966

MOUTON & CO.

THE HAGUE · PARIS

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PREFACE

Most historical studies of Indo-Aryan linguistics have concentrated on the study of documents and inscriptions. A great deal of useful information about the history of these languages and about their relationships has been obtained from such studies. There still remain many unresolved problems. The evidence does not always lead to the same conclusion. The evidence of the early inscriptions would lead to the conclusion, that certain phonological changes had already taken place in the third century B. C., whereas the evidence of Middle Indo-Aryan documents from a later period would indicate that these changes had not yet taken place. Another problem is the development of the Old Indo-Aryan combination of short vowel followed by two consonants. In which languages did this develop into a long vowel followed by a single consonant and in which did it remain? Further, assuming an answer is given to the preceding question, is the answer significant in determining the relationship of the various Indo-Aryan languages to each other? Relatively little work has been done on this problem of the relationship of the Indo-Aryan languages to each other since Grierson established his classification of inner and outer languages.

Dr. Pattanayak's thesis is an attempt to throw more light on a part of this last problem, specifically the relationship of Assamese, Bengali and Oriya. That these three languages are very closely related has long been known and is, indeed, obvious from a perfunctory observation. What is less obvious is a more precise statement of their relationship. Are Assamese and Bengali more closely related to each other than either is to Oriya, or are Oriya and Bengali more closely related to each other than either is to Assamese? When the original ancestor of these languages split into the three modern representatives what specific phonological changes produced the split? Was the original split brought about by innovations on the part of Oriya, of Bengali or of Assamese? Dr. Pattanayak's thesis gives us a more specific answer to these questions than we have previously had available.

The approach to these problems employed by Dr. Pattanayak is that of the comparative reconstruction of a proto-language from the modern languages without any reference to earlier documents. This is an approach to historical Indo-Aryan that has not previously been used to any great extent and one that promises to be very useful in answering at least some of the problems that are posed in Indo-Aryan. This method should be useful in determining the relationship of the earlier docu-

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ments to the modern languages. Grierson's method was comparative, but he did not make a reconstruction and he based his classification of languages partly on typological data. Pattanayak has made a reconstruction and this method permits a determination of the relative chronology of phonological changes which in turn permits a more exact determination of language relationships.

Dr. Pattanayak's study is a very welcome one to Indo-Aryan studies both because it adds to our information about the relationship of Assamese, Bengali and Oriya and because it makes use of a method that has been little used in Indo-Aryan studies.

Cornell University G. H. FAIRBANKS
December 1962

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I express my deep indebtedness to Prof. C. F. Hockett who served as the chairman of my committee and who was invariably liberal with personal help as well as scholarly advice. Prof. Robert A. Hall, Jr., who kindly substituted as the chairman in the absence of Mr. Hockett, has helped me by his valuable suggestions in and out of class.

My interest in anthropology found its fulfilment under the able guidance of Prof. M. E. Opler, who kindly served as the third member of my graduate committee.

Mr. B. G. Misra kindly acted as informant for my Hindi phonemicisation and discussed related problems.

My gratitude is due to my wife who ungrudgingly chose to bear all the difficulties at home during the two years of separation.

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APPARATUS OF SIGNS AND SYMBOLS

An * indicates a reconstructed item. In this discussion an asterisk precedes a phoneme to indicate that it is a reconstructed proto-phoneme, and it precedes a form to indicate that it is a hypothetical form supposedly in existence in *OABH time.

A question mark in parenthesis after an item indicates that the form or statement is questionable. Sometimes due to scanty evidence or lack of evidence it is impossible to make a categoric statement, though the pattern or other attending circumstances would indicate choice in a particular direction. In view of this, (?) may be read as "definite judgment is suspended for the time being, though it is probable that this would be the case".

—— means that a phoneme in a correspondence set or a cognate form in the list of cognates is not available. Thus p p p – 9 means that O/p/, A/p/, B/p/, but no Hindi cognate exists to supply a correspondence. The number refers to the number of the item in the list. Similarly, januar, –, janoar, ja·nvar 15 means that there is no Assamese cognate.

≠ means that though a cognate exists, the particular phonemic correspondence is missing. Thus h h ≠ h 468 means that there are cognate forms in all four languages, but the /h/ is missing in the Bengali cognate.

+ in the list indicates that the form so marked is not considered as a cognate. When this symbol marks a serial number in the list, it indicates that all the forms listed under that number are excluded from consideration as cognates. In a few cases of repetition of items in the list, this sign is also used with specific reference to the number or numbers of the former citations.

OABH stands for Oriya, Assamese, Bengali, and Hindi and this is the order in which all correspondences are presented. Thus a a a a· means O/a/, A/a/, B/a/ and H/a·/ are in correspondence. Similarly, the combinations, OA, AB, BH, AH, etc., are to be read as Oriya and Assamese, Assamese and Bengali, etc., but with an asterisk preceding them, e.g., *AB, are to be read as the proto stage of Assamese and Bengali, etc.

A minus sign before any one or group of language symbols in parenthesis means that a correspondence for that language or language group is missing. (-A) or (-BH) refers to the absence or correspondence in the respective languages for which the symbols stand.

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In the summary of correspondences, there are three columns with or without numerals and a fourth column after a space. The first three columns list the totality of available correspondences in four, three and two languages respectively. Thus a a a a· 38, 19, 2 59 means that there are 38 full correspondences in all the four languages, there are 19 correspondence sets with correspondence in one or the other language missing and there are two correspondence sets with correspondences in any two languages missing. Only such fragmentary correspondences which can be definitely identified with one or the other full correspondence set are so listed. The ones which present a choice of grouping are listed in discussion. The figure in the extreme right hand column gives the total number of correspondences.

VV stands for a vowel cluster and VS stands for a cluster of a vowel followed by a semivowel.

CC stands for a consonant cluster. C_1 C_1 refers to geminates and C_1C_2 refers to non-geminate consonant clusters.

(f) means final. The medial and final VV and VS clusters are listed together under the heading "non-initial VV and VS clusters". (f) marks those correspondence sets which are final.

NC refers to a cluster consisting of N (any nasal) followed by C (any consonant) unless otherwise specified.

The subscript numbers refer to the number of the same vowels in correspondence in cognates of a single item. Thus, u u u – 17_2 means that in the example 17 there are three languages which show vowel correspondences and the fourth lacks a cognate. Of these three there are in two languages /u/ in two different syllables which are in correspondence with /u/ in both syllables of the third.

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I

INTRODUCTION

This phonemic reconstruction using the comparative method is presented as a contribution to Indo-Aryan studies. Though a good deal of historical work has been done in the area of Indo-Aryan studies,[1] this is the second work of its nature. The first work in this line was started by G. H. Fairbanks. Subsequently Frank Southworth dealt with an aspect of this subject in his Ph. D. dissertation. His thesis is entitled *A Test of the Comparative Method* (*A Historically Controlled Reconstruction based on Four Modern Indic Languages*) and was presented to the Yale Graduate School in 1958. In this thesis he used Hindi, Bengali, Punjabi and Marathi. My reasons for choosing Oriya, Bengali, Assamese and Hindi are to find a clue to the closeness of relationship between the three languages of the so-called Eastern Group-Oriya, Assamese and Bengali, and to note the methodological implications by adding a related but apparently distant language.

My data represent spoken specimens of the four modern languages used for reconstruction. If not for any other reason, this is sufficient to justify my naming of the reconstructed language as Proto-Colloquial-OABH. The adoption of the attitude implicit in so naming the reconstructed language avoids the confusion arising from the identification of the Proto-language with one or the other of the written Prakrits and ultimately helps in demonstrating the relation of the Prakrits and the Proto-language in a neat scientific manner.

The list of five hundred and forty-five words prepared by Prof. G. H. Fairbanks forms the basis of this work, though there have been subsequent modifications and replacements of items in the Hindi and Assamese sections. This work is an extension of the application of the Comparative Reconstruction Method to a new field of study rather than a theoretical innovation.

The following is the specific procedure which is used in working out the thesis. After preliminary judgment by inspection, the apparently unrelated item-sets have been eliminated. Phonemic correspondences are listed for the rest. In this presentation four short phonemic statements of the four languages precede the presentation of the correspondences. Those correspondences which are irregular in that they do not show recurrent patterns and do not represent any innovations which justify the reconstruction of a proto-phoneme are listed separately under the sub-heading

[1] See bibliography, section 1.

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"Residue". A short discussion follows every group of correspondences. A set of proto-phonemes is reconstructed applying the usually accepted criteria.[2] A statement is attached regarding the development of the proto-phonemes into each of the four languages used here. After this, statements of relative chronology are made and sub-groupings are indicated on the basis of the "exclusively shared innovation".[3] Prof. Fairbanks' list is attached as an appendix. The numbers listed against the correspondences refer to this list. The reconstructed forms are listed in the extreme right hand column of this list. These reconstructed forms are marked by an asterisk. Since only the root-morphemes have been taken into consideration, the proto-forms are marked by a hyphen, whenever necessary, to indicate that the full word has not been completely reconstructed. The results arrived at are tentative. Additional data might substantially modify some conclusions. The inferences are based strictly on the data used.

[2] See bibliography, section 2.
[3] Dyen, Isidore, Review of Dahl, *Malgache and Maanjan*, in *Lg.*, 29, No. 4, pp. 580.

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II

PHONEMIC STATEMENTS

A. ORIYA

Analysis based on the spoken standard of coastal dialect of Orissa.[1]

1. *Consonants*

p	t	ṭ	č	k	
ph	th	ṭh	čh	kh	
b	d	ḍ	ǰ	g	
bh	dh	ḍh	ǰh	gh	
	s				h
m	n	ṇ		ŋ	
w			y		
	l	ḷ			
	r				

All the above symbols are used in their usual phonetic value. /čǰ/ are voiceless and voiced palatal affricates and /čh ǰh/ are their aspirated counterparts. The voiceless and voiced aspirated consonants are treated as unit phonemes here.

2. *Vowels*

i	u
e	o
a	ɔ

3. *Phoneme of nasalisation* /~/

All consonants except /ŋ ṇ ḷ/ occur initially. /ḍ ḍh/ have flap allophones intervocalically and finally. Consonant clusters having nasal consonants as first member and

[1] Oriya is spoken by over 15 million people on the east coast of India. There are at least five major dialectal divisions besides the many *Adibasi* (tribal) languages existing in Orissa. The phonemic analysis is based on the standard colloquial speech of the coastal dialect of East Orissa. I worked this out partially using myself as informant, during my study at the Deccan College, Poona. There, I received some guidance from Prof. G. H. Fairbanks and A. M. Ghatage. I worked it out in some more detail when I was working as an informant to a group of students in the class of Prof. C. F. Hockett in 1959-60. The analysis is still incomplete.

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a stop as second member always have a homorganic nasal before the stop. In clusters involving /ḍ ḍh/ other than those preceded by a nasal, we get flap allophones, which often are the first members in the cluster. /w/ is of extremely low frequency and occurs only in loan words and in clusters. All consonants except /gh th bh y w/ occur finally. It may be noted that most Oriya words end in a vowel. The words ending in consonants are mostly either loan words or second person imperative forms. /h/ occurs finally after a vowel in a few exclamatory words. Of the many consonant clusters only /kr, kl, kḷ, khy, gr, gl, gḷ, gy, ghr, ḍr, tr, dr, dw, dhy, pr, br, bhr, by, mr, mḷ, sk, skh, st, sn, sr, sḷ, sw, hr/ occur initially. Most of the words beginning with initial clusters are loan words from Sanskrit and English. There are no final clusters in the language.

All the vowels with the exception of /o/ occur oral and nasal. /o/ occurs only oral and it has extremely limited occurrence in the final position. There is a contrast between long and short vowels in certain positions, but no such contrast exists in final position. Instead of accepting the component of length as a phoneme, the long vowels here are treated as sequences of two short vowels in keeping with the general patterning of vowel clusters. There are two types of vowel clusters: (I) VV, which may be subdivided into (a) V^1V^1 (two peaks ~ one peak) and (b) V^1V^2 (two peaks); (II) VS (a peak and a margin). Some of the clusters carry a marginal functional load. There are some kinds of vowel assimilation operating in the language. Mid vowels are lowered before low vowels and raised before high vowels within a word. Before and after retroflex consonants like /ḷṇḍ/ the high and mid vowels are lowered.

B. ASSAMESE

(Spoken in Nowgong District, belonging to the Eastern Assamese dialect group.[2])

1. *Consonants*

p	t		k	
ph	th		kh	
b	d		g	
bh	dh		gh	
	s		x	h
	z			
m	n		ŋ	
w		y		
	l			
	r			

[2] Assamese is the easternmost Indo-Aryan language spoken in the Assam valley in India. Besides the many tribal and Sino-Tibetan languages spoken in the hills of the present state of Assam, there are two major dialectal divisions of the Assamese language. This description is based on the Eastern

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All the symbols are used in their usual phonetic value. /ph th kh bh dh gh/ are treated as unit phonemes.

2. *Vowels*

i	u
e	o
ɛ	ɔ
a	ɒ

3. *Phoneme of nasalisation* /~/

All consonants except /ŋ w y/ occur initially. All consonants occur medially and finally after vowels. /p t k b d g bh dh gh kh m n s z h/ occur post-juncturally before consonants and /p t d dh s z h/ occur prejuncturally after consonants. Aspirated stops are rare in the final position, voiceless aspirated stops being rarer than their voiced counterparts. /ph/ is rarest among this group. Consonant clusters occur initially, medially and finally. Clusters are less common initially and very few finally. Of the final clusters the first member is always a sonorant. All clusters excepting /hr/ occur medially. /p t k b d m n ŋ l s z/ occur geminated. The only one example of geminated /ŋ/ occurs in free variation with /ŋg/ (ex. reŋŋun ~ reŋgun).

The eight way contrast among vowels occurs only in closed monosyllables. /i e a ɔ u/ have no limitations and occur in all environments. There are several restrictions on the occurrences of the other vowels depending on the following consonant and the vowel in the neighboring syllable. /ɛ/ occurs in closed syllables and in open syllables when followed by vowels other than /i, u/. It is in free variation with /e/ when followed by /e ɔ o/. /ɒ/ when followed by Ni or Nu (N = any nasal) is in free variation with /ɔ/; and if the intervening consonant is one other than the nasals, /ɒ/ is in free variation with /ɒ̃/. /ɒ/ ~ /ɔ/ when preceded or followed by /ɔ/ or when followed by /o/ in the next syllable with the intervention of a single consonant. /o/ does not occur followed by /u/ in the next syllable. /o/ alternates with /u/ when preceded by /i u/ in vowel clusters or when /i/ follows in the next syllable with the intervention of a single consonant.

The numerous positional variants of consonant and vowel phonemes are not discussed in this sketch.

Vowel length is allophonic. The longest allophones occur in open monosyllables and the shortest allophones occur in CVCV́CV̆(C)V or CV́CCV̆CV environments (the vowel marked V̆ is short). All the vowels with the exception of /ɔ/ occur nasalized. There are restrictions on the distribution of nasalized vowels. There is no

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dialect spoken in the Nowgong District of Assam. Data for this description have been taken from *Assamese, Its Formation and Development*, by Banikanta Kakati (Gauhati, 1941), and from the unpublished phonemic analysis of Assamese by G. C. Goswami, lecturer, Gauhati University, Assam (India).

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contrast between nasalization and lack of nasalization in vowels immediately following a nasal consonant and immediately preceding or following a nasalized vowel in a vowel cluster.

C. BENGALI

(Standard Colloquial Bengali)[3]

1. *Consonants*

p	t	ṭ	č	k	
ph	th	ṭh	čh	kh	
b	d	ḍ	ǰ	g	
bh	dh	ḍh	ǰh	gh	
	(s)		š		h
m	n			ŋ	
	l				
	r	ṛ			

The above symbols are used in their usual phonetic value. /č ǰ/ are voiceless and voiced palatal affricates respectively and /čh ǰh/ are their aspirated counterparts. The voiceless and voiced aspirate series are treated as unit phonemes. The consonant in parenthesis is discussed below.

2. *Vowels*

i		u
e		o
–		(ȯ)
æ		ɔ
	a	

(ȯ) occurs in the speech of some multi-lingual speakers.

[3] Bengali is one of the Indic languages spoken by nearly seventy million people in both India and Pakistan. The standard colloquial Bengali, which is described here, is based partly on my work with educated informants from and around Calcutta and partly on the following sources:
a) Chatterjee, S. K., *Origin and Development of the Bengali Language* (Calcutta, 1926).
b) ——, *A Bengali Phonetic Reader* (London, 1928).
c) ——, *Brief Sketch of Bengali Phonetics* (London and Paris, 1921). (Originally published in *BSOS*, 2, 1-25, 1921.) (Referred to as Sketch).
d) ——, *Bengali Self-taught*, Fifth Impression (London, 1927).
e) Sutton-Page, W., *An Introduction to Colloquial Bengali* (Cambridge, 1934).
f) Ferguson, C. A., and Chowdhury, M., "The Phonemes of Bengali", *Language*, 36, No. 1, Part 1 (Jan.-March, 1960).
g) Sahidullah, M., "Banglā bhāṣar Itibritta" [in Bengali], *Sāhitya Patrikā* [Journal of the Dacca University, Bengali Dept.], Vol. 2, No. 2, pp. 129-308.

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3. *Phoneme of nasalisation* /~/

In addition to the 28 consonant phonemes shown above, /s/ and the aspirate counterparts of /m n ŋ l r ṛ/ occur in the idiolects of some Bengali speakers. These seven are treated as marginal phonemes in the overall pattern of Bengali phonemics. /ḍ/ and /ṛ/ are in partial complementation. /ṛ/ as a phoneme carries a very low functional load. /č ǰ/ are usually affricates, tending to become /s z/ in initial and intervocalic positions in fast speech. In rapid speech /m/ is sometimes a nasalised [w], and sometimes a mere nasalisation of the contiguous vowels. Aspirate /ph/ commonly alternates freely with labiodental [f] or bilabial voiceless spirant [F]. Aspiration and lack of aspiration in consonants freely alternate in intervocalic and final positions. /h/ alternates freely with zero in intervocalic position. /ṛ/ and /ŋ/ do not occur initially. Consonant clusters are common in medial position, less frequent in initial position and do not occur finally. Geminates contrast with single consonants. /ŋ h r ṛ/ do not occur geminated. Excepting in very few interjections, /h/ does not occur prejuncturally after a vowel.

/ǒ/ is a vowel of extremely low functional load. Chatterjee terms it as a "compromise vowel" (Chatterjee, S. K., Sketch 15, Reader 19. See also § 4.23 of Ferguson's thesis on Bengali). All the vowels except /ǒ/ occur nasalised. /ɔ̃/ is rare and ordinarily in free variation with /ɔn/. There is morphophonemic alternation between high-low pairs of vowels: i-e, e-æ, u-o, o-ɔ. Though /a/ does not participate in this alternation, it is in morphophonemic alternation with /e/ and /o/. /æ/ does not occur finally except in some learned words and bookish pronunciations of some words ending in -e. /æ/ is of recent origin in the language (vide ODBL 410-13). It is useful to indicate the source of this phoneme. (1) Earlier e > æ (a) in monosyllables before nasal consonant, /k/ or /ṛ/, or (b) when the vowel in the following syllable was /o/ or /a/ (possibly also /ɔ/); (2) earlier a > æ in certain cases when the vowel of the following syllable was /a/; (3) the sequence Cyā > (C)Cæ. Polysyllabic word final /ɔ/ does not occur in normal conversational style. Final ɔ-o contrast can be clearly demonstrated only in monosyllables. /ɔ/ and /o/ interchange in the same morph without affecting the lexical or grammatical meaning of the item concerned.

There are three semi-vowels in Bengali – /i̯ e̯ o̯/. Ferguson posits a fourth /u̯/, but admits that u-u̯ contrast is rare and that they may even be in full complementation for many speakers of Standard Colloquial Bengali. All the semi-vowels occur post- and intervocalically. /u̯ o̯/ infrequently occur in pre-vocalic position after a consonant or juncture. Instances of non-final contrasts between vowels and semi-vowels are rare. It may be possible to get rid of the semi-vowel phonemes by positing a phoneme of /+/ (plus juncture). But at the present state of investigation of Bengali, Ferguson and Chowdhury think that the alternative is not entirely satisfactory.

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D. HINDI[4]

1. *Consonants*

p	t		ṭ	č	k	
ph	th		ṭh	čh	kh	
b	d		ḍ	ǰ	g	
bh	dh		ḍh	ǰh	gh	
(f)						(x)
						(γ)
m	n		ṇ		ŋ	
	r		ṛ			
	l					
	s		(ṣ)	š		h
		(z)				
v				y		

All the above symbols are used in their usual phonetic value. /č ǰ/ are voiceless and voiced affricates and /čh ǰh/ are their aspirated counterparts. Aspirated stops, both voiceless and voiced are treated as unit phonemes. The symbols in parenthesis are phonemic for some speakers of the languages, occurring in borrowed words only.

2. *Vowels*

i·	u·
i	u
e	o
a·	a

3. *Phoneme of nasalisation* /~/

All consonants except /ṇ ŋ ṛ/ occur initially. /ṛ/ is a phoneme carrying an extremely low functional load. Borrowed items creating contrast between [ḍ] and [ṛ] in the intervocalic position are responsible for the phonologisation of [ṛ]. /ḍh/ has a flapped allophone [ṛh] in the intervocalic position and in consonant clusters where [ṛh] is the first member of the cluster. /sp st sṭ sk sv šv šk sm pl bl kl fl sl šl pr br tr dr ṭr ḍr kr gr fr vr sr šr mr py by ty dy čy ǰy ky gy vy sy šy my ny/ occur initially and /sp šp mp lp rp mb lb rb pt st št nt rt bd nd rd sṭ šṭ nṭ lṭ rṭ nḍ rḍ nč rč bǰ nǰ rǰ šk nk lk rk ng rg rf tv šv rv ts ks ns kš nš rš sm šm nm lm rm tn sn šn rn ml pr br tr dr ǰr kr

[4] Paul Staneslow, Bal Govind Misra and I worked out the Hindi phonemics, taking Mr. Misra as informant. I have included here a few more phonemes in parenthesis in order to give the overall pattern of Hindi. I am entirely responsible for any mistake or lack of organisation in this draft I have taken the list of clusters from Gumperz and Naim, "Formal and informal standards in the Hindi regional language area", *IJAL*, vol. 26, No. 3, (July 1960), p. 104.

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gr sr šr mr ty ǰy ky ny ly ry/ occur finally. Most of these clusters occur medially. Aspirate stops, and /ṛ ṇ ŋ š ṣ h/ do not occur as geminates. Semi-vowels /v y/ also do not occur geminated.

All the vowels occur both oral and nasal. Oral vowels occur initially, medially and finally without any restriction excepting for /a/ which has a very limited occurrence finally. I found only one example /na/ "not". The nasalised vowels /ã ĩ ũ/ do not occur finally, but the possibility of short vowel plus nasal in the final position fitting in this structural gap is yet to be investigated. There are alternate ways of analysing the vowel system of Hindi.

In the speech of the informant there is a central unrounded vowel occurring after Cr (C= any consonant) cluster. But this is a traditional pandit feature corresponding to Sanskrit syllabic /ṛ/ and its phonemicity is extremely doubtful.

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III

CORRESPONDENCES

A. INITIAL CONSONANTS

1. *Labial stops*

p	p	p	p	5, 16, 58, 61, 62, 212, 223, 267, 276, 293, 375, 429,
p	p	p	–	9, 24, 216, 231, 254, 348, 380, 405
p	p	–	–	147, 275, 302,
p	–	–	p	15, 179, 181,
p	p	–	p	18, 115, 159, 291,
p	–	p	p	51, 147, 353, 360, 382,
p	–	p	–	101, 275,
–	p	–	p	111,
–	p	p	–	169,
ph	ph	ph	ph	3, 10, 329
ph,	ph,	–	–	324,
ph	–	ph	–	499,
b	b	b	b	30, 33, 137, 151, 196, 206, 283, 333, 347, 357, 468,
b	b	–	–	1, 106, 107, 174, 277, 394, 473,
b	–	b	–	161, 243, 473,
–	–	b	b	7, 105,
–	b	–	b	435,
–	b	b	b	25,
–	b	b	–	335,
b	–	–	b	35, 70, 263, 278,
b	–	b	b	37, 362, 363, 407,
b	b	–	b	106, 208, 265, 313,
b	b	b	–	118, 165, 251, 320, 377, 410, 512,
b	b	b	v	127, 145, 162,
–	b	–	v	160,

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bh	bh	bh	bh	41, 113, 184, 188, 205, 272,
–	bh	bh	bh	32,
bh	bh	bh	–	203, 241, 294, 331, 378,
bh	–	bh	–	296, 324, 404,
bh	–	bh	bh	167, 225,
–	bh	–	bh	404,
bh	bh	b	b	114,

Summary and discussion:

1.	p	p	p	p	12,	17,	10	39	*p
2.	ph	ph	ph	ph	3,	–,	2	5	*ph
3.	b	b	b	b	11,	9,	7	27	*b
4.	b	b	b	v	3,	–,	1	4	
5.	bh	bh	bh	bh	6,	3,	1	10	*bh
6.	bh	bh	b	b	1,	–,	–	1	

(a) 11 items (/b/ in two languages) + 7 items (/b/ in three languages) could be either correspondence 3 or 4 (no Hindi).

(b) 8 items give /bh/ in Bengali, but no Hindi correspondence is available. Therefore, they are kept separate.

(c) On the basis of correspondences 1, 2, 3 and 5 /p/ /ph/ /b/ /bh/ are reconstructed.

(d) The /v/ in the Hindi items of the low frequency correspondence 4 makes us suspect these items as Sanskrit borrowings. The correspondence in the other three languages are regular and may be subsumed under 3.

(e) Correspondence 6 is a special case of 5. The Bengali item in it shows lack of aspiration in the final position, whereas the Hindi item shows metathesis of aspiration.

2. *Dental stops*

t	t	t	t	56, 156, 193, 427, 443,
t	–	t	–	12,
t	t	–	–	225, 280,
t	–	–	t	251,
th	th	–	–	400,
d	d	d	d	81, 98, 104, 140, 245, 300, 317, 387, 426, 434, 455,
d	–	d	d	189,
d	d	d	–	356,
d	d	–	d	179, 344, 353,
d	–	–	d	369,
d	–	d	–	476,
–	–	d	d	481,

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	dh	dh	dh	dh	57, 119, 141, 154, 337, 489,
	dh	dh	–	dh	243,
	dh	dh	–	–	255,
	dh	dh	dh	–	303,
	dh	–	dh	dh	312,
Residue:	th	–	ṭh	ṭh	198,

Summary and discussion:

7.	t	t	t	t	5,	–,	4	9	*t
8.	th	th	–	–	–,	–,	1	1	*th
9.	th	–	ṭh	ṭh	–,	1,	–	1	
10.	d	d	d	d	11,	5,	3	19	*d
11.	dh	dh	dh	dh	6,	3,	1	10	*dh

(a) On the basis of correspondences 7, 8, 10, 11 we reconstruct /t/ /th/ /d/ /dh/ respectively.

(b) Though evidence for the reconstruction of /th/ is scanty, the pattern presented by the labial stops offers justification for its reconstruction. Before making the final decision, however, one has to take into account the pattern that emerges from the stop consonants as a whole.

(c) Correspondence 9 lists one example or residue. From this one example it is hard to say whether the initial retroflexion in the Bengali and Hindi items is due to assimilation to the following retroflex cluster or whether the lack of initial retroflexion in the Oriya item is due to dissimilation.

3. *Retroflex stops*

	ṭ	t	ṭ	t	311, (397 is the same item as this)
	ṭh	–	ṭh	ṭh	214,
	ṭh	th	–	ṭh	312,
	ḍ	d	ḍ	ḍ	13, 294,
	ḍ	–	ḍ	–	23, 355,
	ḍ	d	–	ḍ	485,
	ḍ	–	ḍ	ḍ	394,
	ḍh	dh	ḍh	ḍh	256, 421, 486,
Residue:	ḍ	–	ḍ	d	215,
	ḍh	–	ḍh	ḍ	389,

Summary and discussion:

12.	ṭ	t	ṭ	t	1,	–,	–	1
13.	ṭh	–	ṭh	ṭh	–,	1,	–	1
14.	ṭh	th	–	ṭh	–,	1,	–	1
15.	ḍ	d	ḍ	ḍ	2,	2,	1	5
16.	ḍ	–	ḍ	d	–,	1,	–	1

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17.	ḍh	dh	ḍh	ḍh	3,	–,	–	3
18.	ḍh	–	ḍh	ḍ	–,	1,	–	1

(a) Evidence is scanty and fragmentary for the reconstruction of the retroflex series and particularly inadequate for the reconstruction of /ṭ/. Correspondences 12 and 16 with questionable and unaccounted for H/t/ and /d/ really belong to the residue. Consideration of pattern makes us suspect Hindi dentals as correspondences to retroflex consonants in Oriya and Bengali.

(b) In correspondence 18 Hindi shows one example of loss of aspiration in a voiced aspirate consonant. Against this we have three examples where we get ḍh dh ḍh ḍh correspondence. So for the present purpose this H/ḍ/ is considered either as a borrowing or a sporadic loss of aspiration.

(c) In correspondences 12 to 18 retroflexes in OBH show dental correspondences in Assamese whenever we have a cognate. Therefore even though we have no Assamese cognate corresponding to the otherwise overall regular pattern in OBH, we consider 13 and 14, and 17 and 18 to be one correspondence each.

4. *Palatal affricates*

č	s	č	č	48, 163, 188, 191, 258, 328, 419, 428, 484,
č	–	–	č	45, 55, 324, 336,
č	–	č	č	67, 227, 370, 392,
–	s	č	–	66, 70,
č	s	č	–	365, 369, 402,
č	s	–	–	373, 504,
č	–	č	–	415,
čh	s	čh	čh	1, 396, 430, 491,
čh	–	čh	čh	218, 414, 504,
čh	s	čh	–	31,
–	s	čh	–	138,
čh	–	čh	–	278,
čh	–	–	čh	406,
čh	–	čh	s	498 (Hindi item is a dialect borrowing)
čh	s	–	kh	48 (Hindi item is a dialect borrowing)
ǰ	z	ǰ	ǰ	80, 136, 177, 285, 306, 345, 511,
ǰ	z	–	ǰ	198,
ǰ	z	–	–	15, 163, 309,
ǰ	–	ǰ	ǰ	15b, 185,
ǰ	–	–	ǰ	95, 161,
ǰ	–	ǰ	–	179,
ǰ	z	ǰ	–	295,

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–	z	j	–	366,
–	z	j	j	391,
j	z	ǰ	y	271 (The Hindi item is a Sanskrit borrowing)
jh	–	–	jh	356 (383 is the same root)
jh	z	–	–	116,
jh	–	jh	–	175, 383,

Summary and discussion:

19.	č	s	č	č	8,	7,	9	24	*č
20.	čh	s	čh	čh	4,	3,	1	8	*čh
21.	čh	s	–	kh	–,	1,	–	1	
22.	čh	–	čh	s	–,	1,	–	1	
23.	j	z	j	j	7,	8,	1	16	*j
24.	j	z	j	y	1,	–,	–	1	
25.	jh	–	–	jh	–,	–,	1	1	*jh
26.	jh	z	–	–	–,	–,	1	1	
27.	jh	–	jh	–	–,	–,	1	1	

(a) Two items could be 20, 21 or 22 (-H). Two items could be either 23 or 24 (-H).

(b) The low frequency correspondences 21, 22 and 24 suggest borrowing in Hindi. The items with /s/ and /kh/ (examples 48, 498) are dialect borrowings and the item with /y/ is a learned borrowing.

(c) On the basis of correspondences 19, 20, 23 /č/ /čh/ /j/ are reconstructed, and on the basis of correspondences 25, 26, 27 /jh/ is reconstructed.

5. *Velar stops*

k	k	k	k	60, 65, 86, 176, 197, 288, 315, 439, 470 (same as 472) 483, 507 (same as 270), 523,
k	k	–	k	12, 38, 342,
k	k	k	–	17, 92, 120, 263, 282, 343, 346, 435,
k	–	k	k	84,
k	–	k	–	89, 164,
–	–	k	k	96,
k	–	–	k	235, 248,
k	k	–	–	248, 262,
–	k	k	k	477,
kh	kh	kh	kh	290, 292, 310, 497,
kh	–	kh	–	195,
kh	–	kh	kh	240, 424, 496,
kh	kh	–	kh	482,

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	g	g	g	g	93, 100, 224, 236, 287, 319, 341, 490,
	g	g	–	g	28,
	g	g	g	–	8, 28b, 423,
	g	–	g	g	242, 485,
	g	g	–	–	382, 416,
	gh	gh	gh	gh	4, 27, 488,
	gh	gh	gh	–	314,
	gh	gh	–	gh	479,
Residue:	k∼kh	k	k	kh	385,

Summary and discussion:

28.	k	k	k	k	12,	13,	7	32	*k
29.	k∼kh	k	k	kh	1,	–,	–	1	
30.	kh	kh	kh	kh	4,	4,	1	9	*kh
31.	g	g	g	g	8,	6,	2	16	*g
32.	gh	gh	gh	gh	3,	2,	–	5	*gh

(a) In correspondence no. 28, twelve items are listed (8 of the 3 language correspondences and 4 of the 2 language correspondences) which do not show the Hindi item and so could be kept separate technically. But their inclusion or otherwise does not make any difference in the result presented.

(b) The only item shown in the "Residue" list is a case of sporadic aspiration. It may represent dialectal differentiation though a definite explanation cannot be given.

(c) On the basis of correspondences 28, 30, 31, 32 /k/ /kh/ /g/ /gh/ are respectively reconstructed.

6. *Nasals*

	m	m	m	m	19, 40, 44a, b, 76, 102, 108, 139, 142, 187, 192, 237, 289, 305, 509,
	m	–	m	m	222, 409,
	m	m	–	–	72, 397,
	m	m	m	–	178, 411, 474,
	–	m	m	–	338,
	n	n	n	n	78, 85, 123, 124, 149, 230, 249, 340, 433, 457, 475,
	–	–	n	n	280,
	n	n	–	–	149,
	–	n	n	–	211,
	n	–	n	n	234,
	n	–	n	–	284, 361,
Residue:	n	l	n	l	350,

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Summary and discussion:

33.	m	m	m	m	14,	6,	4	24	*m
34.	n	n	n	n	11,	1,	3	15	*n
35.	n	l	n	l	1,	–,	–	1	

(a) On the basis of correspondences 33 and 34 /m/ and /n/ are reconstructed.

(b) The one correspondence listed under residue will be discussed with the correspondences for laterals.

7. *Trill and Laterals*

	r	r	r	r	131, 148, 150, 180,
	r	r	r	–	55, 339,
	r	–	r	r	63, 400,
	r	r	–	–	213, 362, 388,
	r	–	–	r	309,
	r	–	r	–	413,
	–	r	–	r	476,
	l	l	l	l	53, 157,
	l	l	l	–	50, 406,
	l	–	l	l	207, 213,
	l	–	–	l	295, 383,
	–	l	l	–	395,
Residue:	l	l/n	l	–	22,
	l	n	l	–	492,
	l/n	–	l	l	213,
	l	l	n	n	264,

Summary and discussion:

36.	r	r	r	r	4,	4,	6	14	*r
37.	l	l	l	l	2,	4,	2	8	*l
38.	l	l	n	n	1,	–,	–	1	
39.	l/n	–	l	l	–,	1,	–	1	
40.	l	l/n	l	–	–,	1,	–	1	
41.	–	l	l	–	–,	–,	1	1	
42.	l	n	l	–	–,	1,	–	1	

(a) In correspondence sets 35, 38, 39, 40, 42 a good deal of n/l mixture has been shown. As shown in the examples any one language freely uses [n] or [l] in certain items. In Oriya this situation reflects a social dialectal feature to a certain extent. So, from all the available evidence it may be concluded that the apparently confusing n/l situation is due to dialect mixture. This may imply that there was a sub-

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stratum language or dialect possessing only one of these. Since there is no language which possesses only one of these to substantiate the assumption, the n/l correspondences are retained as residues and are open to further examination.

(b) On the basis of correspondences 36 and 37 /r/ and /l/ are reconstructed.

8. *Sibilants and the Aspirate*

s	x	š	s	21, 42, 54, 132, 133, 134, 135, 158, 171, 200, 301, 322, 431, 436, 494,
s	–	–	s	150, 216, 221,
s	–	š	–	172, 181, 248, 381,
s	x	–	–	6, 194, 440,
–	x	š	–	330,
s	–	š	s	152, 194, 250, 273, 318,
s	x	š	–	34, 204, 260, 352, 437, 501,
s	x	–	s	121, 152, 318, 321, 381,
–	–	š	s	49,
s	x	š	š	98, 128,
s	x	–	š	413b,
s	s	š	š	304,
s	s	–	s	231,
h	h	h	h	26, 64, 71, 307, 545,
h	h	h	–	35, 228, 376,
–	–	h	h	160,
h	–	h	h	232,
h	–	–	h	395,
h	h	–	h	492,
h	–	h	–	390,

Summary and discussion:

43.	s	x	š	s	15,	5,	1	21	*s
44.	s	x	š	š	2,	1,	–	3	
45.	s	s	š	š	1,	–,	–	1	
46.	s	s	–	s	–,	1,	–	1	
47.	h	h	h	h	5,	5,	3	13	*h

Five items could be 43 or 46 (-A); ten items could be 43 or 44 [three (-BH) + six (-H) + one (-OH)]; four items could be 43, 44 or 45 (-AH); and two items could be 43 or 46 (-AB).

(a) The Hindi items with /š/ are learned borrowings from Sanskrit. Hindi /s/ in correspondence with O/s/ and A/s/ is borrowed from Perso-Arabic sources. The two items showing /s/ in Assamese are Arabic (ex. 231) and Persian (ex. 304) loan

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words respectively. The low frequency of these correspondences strengthens the conclusion that they are borrowings.

(b) On the basis of correspondences 43 and 47 /s/ and /h/ are reconstructed.

B. NON-INITIAL SINGLE CONSONANTS

1. *Labial stops*

	p	p	p	p	279,
	p	–	p	p	409,
	p	p	–	–	277,
	–	p	p	p	477,
	p	–	p	–	195,
	p	p	p	–	55, 92, 369, 388,
	p	p	–	p	12, 106,
	p	–	–	p	406,
	ph	ph	p	f	145,
	ph	ph	–	f	231,
	b	b	b	b	119,
	b	b	b	–	331,
	b	–	b	b	194, 242, 394,
	b	–	b	–	106,
	b	–	–	b	369,
	b	≠	b	–	204,
	b	b	b	v	127,
	bh	bh	b	bh	80,
Residue:	bh/h	bh	bh	h	236,

Summary and discussion:

1.	p	p	p	p	1,	8,	3	12	*p
2.	ph	ph	p	f	1,	1,	–	2	*ph
3.	b	b	b	b	1,	3,	1	5	*b
4.	b	b	b	v	1,	–,	–	1	
5.	bh	bh	b	bh	1,	–,	–	1	*bh
6.	bh/h	bh	bh	h	1,	–,	–	1	

(a) Three items could be either correspondence 3 or 4.

(b) The inference regarding the initial labial stops is corroborated by this information.

(c) Low frequency of correspondences (see 4 in the summary) adds strength to the conclusion that H/v/ is a borrowing.

(d) It is interesting to note the deaspiration of aspirated stops in the final position

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in Bengali. Intervocalic /bh/ is retained (ex. 236), whereas finally it loses aspiration.

(e) Data is inadequate to make a conclusive statement that in final position Hindi *ph > f. But this conclusion follows strictly from this data.

(f) On the basis of the scanty evidence it is difficult to make a final statement regarding the loss of stop element in voiced aspirated /bh/ in Oriya and Hindi.

2. *Dental stops*

	t	t	t	t	57, 58, 123, 124, 148, 188, 272, 431, 494,
	t	t	–	–	147, 277, 473,
	t	t	–	t	208,
	–	t	t	–	211,
	t	–	t	t	496, 504,
	t	t	t	–	501,
	d	d	d	d	73, 149, 271,
	d	d	d	–	146,
	d	–	d	–	164,
	dh	dh	dh	dh	127, 266,
	dh	–	–	dh	221, 473,
	dh	dh	dh	–	410,
	dh	–	d	dh	189,
Residue:	t	–	–	t/d	35,
	t	t	t	th	26, 71,
	d	dh	d	–	228,
	d	dh	d	#	30,
	dh	–	–	h	263,
	h	–	–	dh	44a,

Summary and discussion:

7.	t	t	t	t	9,	3,	–	12	*t
8.	t	t	t	th	2,	–,	–	2	
9.	t	–	–	t/d	–,	–,	1	1	
10.	d	d	d	d	3,	1,	–	4	*d
11.	d	dh	d	–	–,	2,	–	2	
12.	dh	dh	dh	dh	2,	1,	–	3	*dh
13.	dh	–	d	dh	–,	1,	–	1	
14.	dh	–	–	h	–,	–,	1	1	
15.	h	–	–	dh	–,	–,	1	1	

(a) One item could be 10 or 11. Two items could be 12 or 13.

(b) No correspondence is available in this position for the reconstruction of /th/. But the pattern of the stops and affricates in general and the evidence, though meagre, in the initial position is sufficient to justify the reconstruction of this phoneme.

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(c) Bengali shows the same results as in the case of -bh-, in retaining /dh/ intervocalically and deaspirating it in the final position.

(d) Of the residual correspondences, example 35 of correspondence 9 very likely reflects a difference in the style of speech in Hindi. In any case, the presence of /x/ in one of the two forms indicates that the Hindi item is borrowed. In the absence of any other evidence it has to be concluded at this point that the items with aspirated consonants in Hindi in correspondence 8 (examples 26, 71) and in Assamese in correspondence 11 (examples 30, 228) are borrowings.

(e) Correspondences 14 and 15 (examples 263, 44a) show the loss of the stop element in Hindi and Oriya respectively. Considered along with the evidence of labials in the non-initial position, it may be said that the voiced aspirated consonants have a tendency to develop into /h/ in some dialect areas and for the purposes of this data they are to be considered borrowings. But most of the statements on these residues are conjectures rather than definite explanations. So these correspondences are retained as residues for further examination.

3. *Retroflex stops*

	ṭ	t	ṭ	ṭ	36, 62, 288, 497,
	ṭ	t	–	–	174, 302, 416,
	ṭ	–	ṭ	–	415,
	ṭ	–	ṭ	ṭ	218, 222,
	ṭh	th	ṭ	ṭh	61, 88, 157, 432,
	–	th	ṭ	ṭh	487,
	ṭh	th	–	–	248,
	ṭh	–	–	ṭh	248, 398,
	ṭh	th	ṭh	–	348, 392,
	ḍ	r	ḍ	ṛ	27, 196, 293, 298,
	ḍ	–	ḍ	ṛ	227, 414, 485,
	ḍ	–	–	ṛ	150, 179,
	ḍ	–	ḍ	–	243, 278, 476,
	ḍ	r	–	ṛ	198, 344, 482,
	–	r	ḍ	–	169, 330, 395,
	ḍ	r	–	–	394,
	ḍ	r	ḍ	–	282, 435,
	–	r	ḍ	ṛ	32,
	ḍh	r	ḍ	ḍh	104,
	ḍh	–	–	ḍh	251,
	ḍh	–	ḍ	ḍh	363, 392,
	ḍh	–	–	ṛ	216, 295,
	–	r	č	ṛ	477,
Residue:	ḍ	–	r	ṛ	147,

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Summary and discussion:

16.	ṭ	t	ṭ	ṭ	4,	2,	4	10	*ṭ
17.	ṭh	th	ṭ	ṭh	4,	1,	–	5	*ṭh
18.	ṭh	th	ṭh	–	–,	1,	–	1	
19.	ḍ	r	ḍ	ṛ	4,	6,	6	16	*ḍ
20.	ḍ	–	r	ṛ	–,	1,	–	1	
21.	–	r	č	ṛ	–,	1,	–	1	
22.	ḍh	r	ḍ	ḍh	1,	2,	1	4	*ḍh
23.	ḍh	–	–	ṛ	–,	–,	2	2	

(a) There is no evidence in this data showing contrast between /ḍ/ and /ṛ/ in Hindi. It has been pointed out in the phonemic statement of Hindi that /ṛ/ has a very low functional load and the phonologisation of [ṛ] is relatively recent. Therefore for purposes of reconstruction, [ṛ] may be considered as an allophone of /ḍ/. Accepting the suggestion of Prof. G. H. Fairbanks ("Frequency and Phonemics", *Indian Linguistics* 17.105-13) one could analyze Hindi /ḍh/ [ḍh-, -ṛh-], /ḍ/ [ḍ-, -ṛ-], /D/ [-ḍ-]. Acceptance of either analysis does not make any difference for the present purpose and yields the same result.

(b) Bengali shows the tendency of deaspiration of aspirate stop consonants in non-initial position (as noted earlier).

(c) It is difficult to say whether the Bengali item with /r/ in correspondence 20 (example 147) is a borrowing from a different social level of speech or from a different dialect.

(d) Correspondence 21 presents a sandhi feature in Bengali, where a /ḍč/ shows up as /čč/.

(e) On the basis of correspondences 16, 17 and 18, 19, and 22 /ṭ ṭh ḍ ḍh/ are reconstructed for the proto-language.

(f) Three items could be correspondence 17 or 18. Six items could either be 19, 20 or 21; but 21 shows a sandhi feature in Bengali as pointed out before and is really the same as correspondence 20.

4. *Palatal affricates*

č	s	č	č	340, 483,
č	s	č	–	216,
č	–	č	č	234/280,
čh	s	čh	čh	19, 276, 439,
čh	–	čh	čh	37,
čh	s	–	–	275,
–	s	čh	–	338,
čh	s	čh	–	8, 377,
ǰ	z	ǰ	ǰ	131, 467,

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	j	z	j	–	204,
	j	–	j	–	413,
	j	–	j	j	424,
	j	z	j	z	511,
	jh	z	j/ddh	–	474 (this correspondence is listed under non-initial cluster pattern also).
Residue:	j	–	j	g	225,
	–	–	č	j	7,

Summary and discussion:

24.	č	s	č	č	2,	2,	–	4	*č
25.	čh	s	čh	čh	3,	3,	2	8	*čh
26.	j	z	j	j	2,	1,	–	3	*j
27.	j	z	j	z	1,	–,	–	1	
28.	j	–	j	g	–,	1,	–	1	
29.	–	–	č	j	–,	–,	1	1	
30.	jh	z	j/ddh	–	–,	1,	–	1	*jh

(a) Two items could be 26, 27 or 28.

(b) Hindi low frequency /z/ in correspondence 27 (example 511) represents borrowing.

(c) Though there is almost no clear example in the non-initial positions to reconstruct /jh/, correspondence 30 plus pattern pressure is deemed sufficient for the reconstruction of this phoneme.

(d) H/g/ in correspondence 28 and B/č/ in 29 are indeterminate.

(e) On the basis of correspondences 24, 25, 26 and 30 /č čh j jh/ respectively are reconstructed. This corroborates the findings in the reconstruction of initial palatal consonants.

5. *Velar stops*

k	k	k	–	17, 20, 24,
k	k	–	–	1, 194,
–	k	k	–	66,
k	–	k	–	172, 355, 471,
k	k	k	k	78, 153, 304, 425,
k	–	k	k	214,
k	k	–	k	208, 482,
k	–	–	k	473,
k	–	–	k/x	35,
kh	kh	kh	kh	317, 387
kh	kh	–	–	362,
kh	–	kh	kh	400,

Digitized by PPRACHIN, SOA

	kh	kh	–	kh	179,
	kh	–	–	kh	66,
	–	kh	kh	kh	76a,
	kh	kh	k	kh	85,
	g	g	g	g	184,
	g	–	g	g	185,
	g	–	g	–	324,
	–	g	g	g	391,
	g	g	–	–	407,
	g	g	–	g	152,
	–	–	g	g	143,
	g	g	g	–	45, 274,
	#	g	g	–	31,
	gh	gh	g	gh	33, 139,
Residue:	k	k	č	č	347,
	č	k	k	k	267,
	č	k	k	–	406,
	kh	k	k	kh	200,

Summary and discussion:

31.	k	k	k	k	4,	6,	4	14	*k
32.	k	k	č	č	1,	–,	–	1	
33.	č	k	k	k	1,	1,	–	2	
34.	k	–	–	k/x	–,	–,	1	1	
35.	kh	kh	kh	kh	2,	2,	–	4	*kh
36.	kh	kh	k	kh	1,	–,	–	1	
37.	kh	k	k	kh	1,	–,	–	1	
38.	g	g	g	g	1,	5,	4	10	*g
39.	gh	gh	g	gh	2,	–,	–	2	*gh

(a) One item could be correspondence 31 or 33. Three items could be 35 or 36.

(b) /k/ /kh/ /g/ /gh/ are reconstructed on the basis of correspondences 31, 35, 38 and 39 respectively. Evidence available from these correspondences supports the inference from the initial correspondences and fits into the pattern demonstrated so far.

(c) Bengali shows deaspiration of aspirated consonants in non-initial positions (correspondences 36, and 39).

(d) The Hindi item with /x/ in correspondence 34 is an Arabic loan word.

(e) Correspondences 32 and 33 (examples 347, 267 and 406) are too fragmentary to yield any statement of a consistent nature.

(f) Absence of Aspiration in Assamese in correspondence 36 (ex. 200) is indeterminate.

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6. *Nasals*

m	m	m	m	224, 249, 443, 444,
m	m	m	–	120, 282,
–	m	m	–	335,
–	–	m	m	96,
m	m	–	m	265, 342,
m	–	m	m	152,
w̃	#	m	m	136,
n	n	n	n	54*, 65, 140, 191, 427, 489,
n	n	–	–	248, 278,
n	n	–	n	121, 243, 413,
n	–	n	n	15, 208,
ṇ	n	n	n	50, 108, 114, 176, 212, 287, 301, 306, 311,
ṇ	–	n	n	159,
ṇ	–	n	–	23, 161,
ṇ	n	n	–	20, 178, 346, 349,
ṇ	n	–	–	15, 262, 382,
ṇ	–	n	#	215,
ṇ	#	n	n	357,
ṇ	#	n	–	412,
ṇ	n	n	ṇ	270,
ṇ	n	n	ṇ/n	122,
uṇ	–	nu	n	84,

Summary and discussion:

40.	m	m	m	m	4,	5,	–	9	*m
41.	w̃	#	m	m	1,	–,	–	1	
42.	n	n	n	n	6,	5,	2	13	*n
43.	ṇ	n	n	n	9,	2,	–	11	*ṇ
44.	ṇ	n	n	ṇ	1,	–,	–	1	
45.	ṇ	n	n	ṇ/n	1,	–,	–	1	
46.	uṇ	–	nu	n	–,	1,	–	1	

(a) Two items could be 40 or 41. Eleven items could be 43 or 44.

(b) Correspondence 45 is the same as 43 except for Hindi. The /ṇ/ in the Hindi item in 45 occurs with an initial br- cluster which marks it as a loan word.

(c) Correspondence 46 is the same as 43; some kind of metathesis is involved here.

(d) The Hindi item listed under 44 (example 270) has a variant form with /n/ (this item is not listed and may be a dialectal variation). This form with /ṇ/ may be considered a borrowing in Hindi.

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(e) As will be explained in the discussion of initial cluster patterns, the item w̃ in Oriya in correspondence 41 with w̃ participating in an initial cluster is considered a loan word.

(f) /m/ and /n/ are reconstructed on the basis of correspondences 40 and 42.

(g) On the basis of the correspondences 43-46 which are in contrast with the correspondences for the reconstruction of /m/ and /n/ a new phoneme has to be added to the proto-phoneme inventory. This phoneme /n/ has a lower functional load than the other two nasal phonemes.

7. *Trills and laterals*

r	r	r	r	$98b_2$, 156, 168/235, 212, 224, 236, 249, 270, 272, 279, 289, 294, 304, 305, 354, 404, 419, 423, 428, 455, 468, 481, 491, 523,
r	r	r	–	17, 28, 120, 178, 231_2, 241, 303, 351, 376, 380, 412,
r	r	–	–	255, 277,
–	–	r	r	49, 96,
–	r	r	r	25,
r	–	–	r	263, 324,
r	–	r	r	15, 167, 242,
r	r	–	r	121, 152, 265, 479,
r	–	r	–	101, 107, 175, 195, 275,
–	r	r	–	366,
l	l	l	l	1, 3, 41, 60, 93, 151, 193, 230, 256, 329, 470/472, 486,
l	l	–	l	48, 312, 471,
l	l	l	–	45, 203, 263, 365,
l	–	–	l	161, 181, 336, 356, 395,
l	l	–	–	397,
l	–	l	l	213, 240, 318,
l	–	l	–	383,
–	l	l	–	70,
ḷ	l	l	l	10, 13, 30, 58, 100, 135, 141, 188, 197, 285, 310, 341,
ḷ	l	l	–	32, 92, 228, 356, 405, 423, 492,
ḷ	–	l	l	134, 389, 407,
ḷ	l	–	l	353, 492,
ḷ	–	l	–	12, 172, 499,
ḷ	l	–	–	1, 194, 280, 324, 504,
ḷ	–	–	l	70,

Digitized by PPRACHIN, SOA

Residue:	r	–	r	ɽ	37,
	ḷ	nd	ḍ	d	290,

Summary and discussion:

47.	r	r	r	r	25,	8,	4	37	*r
48.	r	–	r	ɽ	–,	1,	–	1	
49.	l	l	l	l	12,	10,	7,	29	*l
50.	ḷ	l	l	l	12,	12,	9,	33	*ḷ

(a) Twenty items could be 47 or 48 (-H).

(b) The one Hindi item in correspondence 48 does not fit into the correspondence pattern and is considered as "Residue".

(c) On the basis of correspondence 50 which is in contrast with 49, a phoneme /ḷ/ has to be posited for the proto-language. This phoneme, like /ṇ/, has a limitation on its occurrence in that it never occurs initially.

(d) On the basis of correspondences 47 and 49 /r/ and /l/ are reconstructed.

8. *Sibilants and the Aspirate*

	s	x	š	s	153, 260,
	s	x	–	s	413,
	s	x	š	–	352,
	–	x	–	ṣ	167,
	s	h	š	s	4, 132, 133, 307, 328, 385, 434, 509,
	s	h	š	–	254, 314, 320, 411, 512,
	s	h	š	#	286,
	s	–	š	s	353, 382,
	s	–	š	–	265, 284, 296, 473, 499,
	s	–	–	š	15,
	h	h	h	h	53, 98, 260, 511,
	h	–	h	h	147,
	h	h	–	h	208, 381,
	h	h	–	–	473,
	h	h	#	h	468,
	h	#	h/#	h	315,
	h	–	h	–	381,
	h	–	#	h	84, 360, 370,
	h	#	#	h	137, 283, 457,
	h	–	–	h	76b, 309,
	h	–	#	#	215,
	h	#	#	#	436,
	h	#	–	–	388,
Residue:	–	s	–	s	435,

Digitized by PPRACHIN, SOA

Summary and discussion:

51.	s	x	š	s	2,	2,	–	4	
52.	–	x	–	ṣ	–,	–,	1	1	
53.	s	h	š	s	8,	6,	–	14	*s
54.	–	s	–	s	–,	–,	1	1	
55.	s	–	–	š	–,	–,	1	1	
56.	h	h	h	h	4,	5,	10,	19	*h
57.	h	#	#	#	1,	1,	1	3	

(a) Seven items could be 51, 53 or 54 (-A).

(b) Three items in correspondence 57 show /h/ in one language, but the /h/ is lost in cognates in the other languages used here.

(c) The residual items showing H/ṣ/ in correspondence 52 and H/š/ in correspondence with O/s/ in 55 are learned borrowings.

(d) The item showing A/s/ in correspondence 54 is indeterminate due to lack of data. In the initial consonant correspondences it was also noted that A/s/ is introduced through loan words of low frequency.

(e) The high frequency correspondences show that A/h/ is in correspondence with O/s/, B/š/ and H/s/ in the medial position. Correspondences 51 and 52 showing A/x/ in the medial position are indeterminate.

(f) On the basis of correspondences 53 and 56 /s/ and /h/ are reconstructed.

C. INITIAL CLUSTER PATTERN

pr	pr	–	–	15,
br/b	b	b	br/b	122,
ty	ty	–	–	407,
d	d	d	dv	481,
sm	xðw	š	–	412,
sv/s	x	š	sw	368,
hr	hr	hr	hr	73,
hr	hr	hr	–	146,
ghr	gh	gh	ghr	367,
mr	mr	mr	mr	178,

Evidence for reconstruction of initial clusters is very scanty and fragmentary. Many of the forms with an initial consonant cluster show up with doublets in one or the other of the languages used here. These alternate forms show up in a reduced form either with a single consonant or with a svarabhaktic vowel insertion between the two consonants of the initial cluster. Invariably, the forms beginning with a consonant cluster are not used in colloquial speech and belong properly to a slightly elevated style.

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In consideration of these factors and in view of their low frequency and lack of pattern there is no need to reconstruct initial consonant clusters for the proto-language. These may be considered as borrowings.

The initial vowel followed by a NC cluster has not been separately analyzed here in detail. These correspondences have been included in the regular scheme. The following four examples deserve special mention here.

ənt	–	–	ã·t	69,
əndh	andh	ãdh	andh	168/235,
–	aŋ	aŋ	ãg	487,
unčr ~ učč	–	ũč	ũ·č	233,

In these cases there is enough evidence to reconstruct NC clusters following the initial vowels. The NC cluster is retained in Oriya. In Assamese in one instance the cluster is retained whereas in the second case (ex. 487) the stop element is lost with lengthening of the preceding vowel. Hindi examples show three way development. The evidence is fragmentary. This has to be checked with the development of medial clusters of the same type.

D. NON-INITIAL CLUSTER PATTERN

pṭ	pɛt	pṭ	pṭ	258,
pn	pon	pn	pn	368,
bǰ	–	bǰ	–	89,
b	b	–	bb	485,
tr/tər	t	t	tt	5b,
tr	tr	tr	tr	128,
≠	tr	–	tr	115,
təḷ	tɒl	tl	tl	223,
tv	–	tt	–	413,
ty	tt	tt	ty	178,
tt	tt	tt	tt	354,
–	tn	–	tn	111,
th	–	th	tth	51,
dr	–	dr	dr	152,
dm	dum	dd	–	9,
ddh	z	ddh	–	295,
ṭk	–	–	ṭk	383,
ṭ	t	ṭ	ṭ/ṭṭ	142,
ṭh	th	ṣṭ	ṭh	237,
ṭh	th	ṭh	ṭṭh	102,
ḍ	r	ḍ	ḍḍ	64,

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rb	–	rb	rb	67,
rb	rb	–	–	147,
rb	rb	rb	rb	245,
rt	–	rt	–	404,
–	–	rj/jj	rva·z	481,
rjy	rzz	jj	raj	158,
rs/rɔs	rɒx	–	ras	313,
rs	sɒr	čor	rš	162,
p	p	p	rp/p	21,
lṭ/lɔṭ	–	lṭ	–	334,
luk	–	lk	lk	232,
l	–	–	lh	45,
–	–	čč	čč	105,
jr	zr	j	–	165,
jy	–	jj	–	381,
jh	z	j/ddh	–	474,
s	h	š	ṣy	108,
sv	–	šš	–	284,
–	s	–	ss	476,
sk	sk	šk	–	231,
st	st	st	st	150,
st	–	št	–	255,
sth	–	šth	–	265,
sṭ	st	šṭ	–	402,
kt	–	kt	kt	63,
kt	–	kt	–	248,
kr	–	kr	–	347,
k	k	k	kr	484,
k	–	kk	k	312,
kh	kh	kh	kṣ	16,
khy	khy	kkh	–	388,
čh	kh	č/čh	kkh	44b,
čh	kh	čh	kkh	40,
mɔḍ	mr	mḍ	mṛ	48,
mh	m	m	mh	122,
mbh	mbh	mbh	–	351,
ndh	ndh	ndh	–	118,
ndh	–	ndh	ndh	262,
nm	nm/nɒm	nm	nm	177,
ṇ	–	nn	–	179,
ṇ	n	nn	ṇ	367,
nd	–	nd	nd	250,

Digitized by PPRACHIN, SOA

ḷ	nd	ḍ	d	290,
nčh	–	č	≠	498,
nt	t	–	–	225,
ntr	–	nt	–	179,
nj	z	j	–	22,
kh	kh	–	nkh	16,
ṇḍ	–	–	ṇḍ	186,
ṇd	r	–	–	72,

The above list of non-initial consonant clusters may be arranged in the following way to bring out the pattern.

Stop + stop (palatal series included)

pṭ ṭk kt

bb tt tth ddh ṭṭ ṭṭh ḍḍ čč kk kkh

Stop + r/l

tr dr jr kr tl

Stop + y/v/n/S (N = any nasal; s = any sibilant)

by pn ks

ty tv tn dm

jy

khy

r/l + C (C = any consonant)

rp rb rt rj rjy rs

lṭ lk lh

S + C (S = any sibilant; C = any consonant)

ṣṭ sv sy sk st sth sṭ ss

N + C (N = any nasal; C = any consonant)

mḍ mbh mh

nd ndh nm nn nčh nj nt ntr nkh

ṇḍ

As would be evident from the presentation so far, there is some consistency in the pattern for geminates and clusters consisting of nasals followed by consonants. The latter kind of consonant clusters may be considered along with the VNC (V = any vowel, N= any nasal, C= any consonant) clusters, as they show similar developments. Correspondences for all other consonant clusters are fragmentary and inconsistent.

Eliminating all dubious correspondences, where non-geminate consonant clusters are in correspondence with geminate clusters, the following correspondences for geminate clusters may be noted.

1.	b	b	–	bb	485,
2.	tt	tt	tt	tt	354,

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3.	th	–	th	tth	51,
4.	ddh	z	ddh	–	295,
5.	ṭ	t	ṭ	ṭ/ṭṭ	142,
6.	ḍ	r	ḍ	ḍḍ	64,
7.	–	–	čč	čč	105,
8.	k	–	kk	k	312,
9.	čh	kh	čh	kkh	40/44b,
10.	ṇ	n	nn	ṇ	367,
	ṇ	–	nn	–	179,
11.	–	s	–	ss	476,
12.	ǰh	z	ǰ/ddh	–	474 (R)

On the basis of correspondences 1-11 the following geminate clusters are reconstructed.

*bb	*tt	*tth	*ddh	*ṭṭ	*ḍḍ
*čč	*kk	*kkh	*nn	*ss	

Correspondence 12 is marked (R) as it represents a residual indeterminate feature. O/ǰh/, A/z/ and B/ǰ/ may be considered as the regular correspondence for /ǰh/, wherein the Bengali item loses aspiration in the final position. In this case, the Bengali item with -ddh- cluster may be considered a borrowing. Eliminating the item with the cluster, the correspondence does not belong here and hence is considered residual in the present context.

For a fuller exposition of the patterning the NC and the VNC clusters are listed below.

1.	mbh	mbh	mbh	–	351,
2.	mɔḍ	mr	md	mṛ	48,
3.	mh	m	m	mh	122,
4.	nt	t	–	–	225,
5.	ntr	–	nt	–	179,
6.	ndh	ndh	ndh	–	118,
7.	ndh	–	ndh	ndh	262,
8.	nd	–	nd	nd	250,
9.	nčh	–	č	#	498,
10.	nǰ	z	ǰ	–	22,
11.	kh	kh	–	nkh	18,
12.	nm	nm/nɒm	nm	nm	177,
13.	ṇ	n	nn	ṇ	367,
14.	ṇ	–	nn	–	179,
15.	ṇḍ	–	–	ṇḍ	186,
16.	ṇḍ	r	–	–	72,
17.	ḷ	nd	ḍ	d	290 (R)

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Before listing the VNC clusters it is interesting to note a few features in this batch of correspondences. Correspondences 2, 3 and 12 show clusters in which a non-stop consonant follows the nasal. These three correspondences of one example each are unpatterned in comparison with the clusters consisting of a nasal and a stop (and affricate) consonant. As could be evident from the phonemic statements for various languages and from these examples, homorganic nasals occur before a stop consonant (affricates included). In other words, contrast between the nasal phonemes is neutralised before stops and affricates. Keeping this factor in view, the following clusters may be examined for analysis.

1.	əmb	am	ãb	ã·b	56,
2.	əmb	–	əmb	əmb	207,
3.	ant	ãt	ãt	ã·t	81,
4.	–	ãt	ãt	–	330,
5.	əndr/and	ɒndr	ãd	andr	163,
6.	and	and	ãd	–	343,
7.	and	–	–	ã·d	55,
8.	–	and	ãd	and	25,
9.	əndh/ənǰ	ɒndh	əndh	andh	171,
10.	andh	andh	ãd	andh	86,
11.	andh	andh	ãdh	ã·dh	333,
12.	andh	andh	ãdh	–	339,
13.	əṇḍ	–	aṇḍ	aṇḍ	198,
14.	anč	as/ãs	ãč	ã·č	429,
15.	unč	–	ũč	ũč	360,
16.	ənčh	–	ãč	ač	362,
17.	ənj	–	aǰ	–	101,
18.	əŋk	ɛ̃k/ɛk	ɛ̃k	–	251,
19.	aŋk	ak	ak	ãk	421,
20.	əŋkh	–	ak	–	181,
21.	əŋg	–	–	ang	161,
22.	əŋg	ɒŋ	–	–	213,
23.	əŋg	ɒŋ	əŋ	ang	180,
24.	əŋg	ɛŋ	ɛŋ	aɒg	264,
25.	aŋg	–	əŋg	ang	273,
26.	aŋg	aŋ	aŋ	–	378,
27.	əŋgh	–	–	ã·gh	95,
28.	iŋg/iŋgh	iŋ	iŋ	ĩ·gh	42,
29.	uŋgh	uŋ	ok	ũgh	322,
30.	əŋs	–	əŋš	ans	382,
31.	əŋs	ãh	ãs	–	35,
32.	aŋs/aũs	aŋx	aŋš/ãš	ã·s	187,

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33.	ɔnh	on	–	–	163,
34.	iŋh	ĭŋh	iŋgh	–	34,
35.	wā̃	ðа	ama	ama·	136 (R)

These correspondences strengthen the observations made in connection with the NC clusters. The homorganicness of the nasal preceding the stop consonants (palatal series included) is clearly demonstrated in the Oriya examples and can be clearly established in the other three languages from the correspondences from 1-29. Correspondence 34 also reflects the same situation. Correspondence 30-33 presents fragmentary and inconsistent evidence. The alternate forms in OB in correspondence 32, the dissimilar Assamese development in correspondences 31 and 32 and the peculiar correspondence in 33 are too unsystematic to be explained with the meagre data. Data is also insufficient to make a conclusive statement of pattern with regard to correspondence 35.

Combining correspondences 1, 4-11, and 13-16 of the NC clusters above with correspondences 1-29 and 34 of the VNC clusters, there emerges a definite pattern. This gives us enough evidence to reconstruct the following clusters for the proto-language, assuming [ñ] and [ŋ] as allophones of /n/.

*mb	*nt	*nd	*ndh	*ṇḍ		
*nč	*nčh	*nǰ	*nk	*nkh	*ng	*ngh

It may further be noted that the VNC clusters are listed separately to show the special effects of the following nasal on the preceding vowel. These special developments are listed in section D.

The other clusters involving a nasal and a non-stop series consonant are considered as borrowings.

E. INITIAL VOWELS

	ɔ	ɔ	ɔ	–	388b,
	ɔ	–	ɔ	–	265,
	ɔ	–	–	a	186, 473c,
	ɔ	–	ɔ	a	208, 262,
Residue:	ɔ	a	a	a·	266,

Summary and discussion:

1.	ɔ	ɔ	ɔ	a	–,	3,	3	6
2.	ɔ	a	a	a·	1,	–,	–	1

The evidence here is fragmentary. However, it shows a certain amount of consistency in so far as the available correspondences in all the languages show the same ɔ-type vowel. There being no evidence to the contrary, the above correspondences, barring the one listed under "Residue", are considered to be the same and on the basis of correspondence 1 /ɔ/ is reconstructed.

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The one correspondence listed under residue shows H/a·/. The AB/a/ in correspondence to O/ɔ/ is due to the reduction of a consonant cluster and consequent lengthening of the preceding vowel. The Hindi item may be a similar case or may be a borrowing. The evidence is inadequate to explain it. So the whole correspondence is put under "Residue". Eliminating the Hindi item, the rest fit in with the regular correspondence for /ɔ/.

a	a	a	a·	153, 286, 432, 467,
a	a	a	–	274, 349, 351, 444,
a	–	a	–	255,
–	–	a	a·	143,
a	–	–	ã	66,

Summary and discussion:

3.	a	a	a	a·	4,	4,	2	10	*a
4.	a	–	–	ã	–,	–,	1	1	

(a) On the basis of correspondence 3 /a/ is reconstructed.

(b) Correspondence 4 is a special case of 3. The Hindi item shows sporadic nasalisation.

i	i	i	–	45,

Summary and discussion:

5.	i	i	i	–	–,	1,	–	1

Evidence is insufficient here. The absence of a Hindi correspondence is attributed to inadequacy of data rather than to distributional limitation and an /i/ is reconstructed on the basis of correspondence 5.

In the absence of a Hindi correspondence there is no way of knowing whether this is a short or long /i/.

e	ɛ	ɛ	e·	425,
e	–	ɛ	–	471,
e	e	e	–	442,

Summary and discussion:

6.	e	ɛ	ɛ	e·	1,	–,	1	2
7.	e	e	e	–	–,	1,	–	1

The above three correspondences are considered to be the same. AB/ɛ/ occurs in closed monosyllables and when followed by a low vowel in the next syllable.

On the basis of the correspondences 6 and 7 /e/ is reconstructed.

	8.	o	o/õ	–	õ	88,
Residue	9.	o	–	u	–	334,

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Discussion:

The inadequate evidence does not allow any definite conclusion regarding nasalisation in AH. However the presence of a doublet in Assamese indicates that the nasalisation is either borrowing or a sporadic variation. An /o/ can be reconstructed, attributing the absence of correspondence in Bengali to inadequacy of data.

10.	o	u	u	ũ·	36,
11.	u	o	u/o	u·	279,

Discussion:

Evidence, though fragmentary, is sufficient to reconstruct a /u·/. OAB/o/ occurs when followed by a low vowel in the next syllable.

u	u	u	u	298, 354,
u	–	–	u	398,
–	u	–	u	167,
u	u	o	–	392b,
u	u/o	u	–	20,

Summary and discussion:

12.	u	u	u	u	2,	–,	2	4	*u
13.	u	u	o	–	–,	1,	–	1	
14.	u	u/o	u	–	–,	1,	–	1	

(a) On the basis of the above correspondences /u/ is reconstructed.

(b) Correspondences 13 and 14 are special cases of 12. AB/o/ occurs when followed by a lower vowel in the next syllable.

Conclusion:

From the initial vowel correspondences one comes to the conclusion that though data is fragmentary and inadequate, there is evidence to reconstruct /ɔ/ /a/ /e/ /o/ /u/ /u·/ and a /i/. We are not sure whether this /i/ is short or long. On the basis of the pattern provided by the high back vowel a long and a short high front vowel would be expected, the absence of which is attributed here to the insufficiency of data.

F. MEDIAL VOWELS

ɔ	ɒ	ɔ	a	10, 100, 145, 162, 171, 177, 224, 245, 249, 283, 289, 294, 315, 368, 433, 434, 436,
ɔ	ɒ	ɔ	–	9, 45, 92, 178, 216, 231, 320, 351, 492,
ɔ	–	ɔ	a	194, 250, 392,
–	ɒ	ɔ	a	25,

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ɔ	ᴅ	ɔ	#	145,
ɔ	–	ɔ	–	107, 172, 175, 179_2, 248, 275, 413, 499,
ɔ	ᴅ	–	–	15, 147_2, 194, 262, 280, 388, 473,
ɔ	–	#	–	101, 175,
–	–	ɔ	a	481,
–	–	o	a	481,
ɔ	ᴅ	o	a	58, 85, 196, 270, 272, 279, 285, 293, 354, 523,
ɔ	ᴅ	o	–	118, 146, 178, 241, 303, 412,
ɔ	–	o	a	51, 63, 67, 152, 242, 382, 407,
ɔ	ᴅ	o	#	127, 224, 249,
–	ᴅ	o	–	211,
ɔ	ɔ	o	a	44a, 98, 128, 133, 149, 236, 271,
–	ɔ	o	–	66, 335,
ɔ	–	o	–	89, 161, 243, 404, 499,
#	ɔ	o	–	31,
ɔ	ɔ	–	a	243,
–	ɔ	–	a	476,
ɔ	ɔ	–	–	1, 194, 248, 277,
ɔ	ɔ	#	–	228,
ɔ	ɔ	a	a	16,
ɔ	ᴅ	a	–	8, 120, 165, 348, 365, 405,
ɔ	ᴅ	–	a	12, 152, 208, 313, 353, 362, 381, 413, 479,
ɔ	ᴅ	a	a	484,
–	ᴅ	–	a	111, 404,
–	ᴅ	a	–	395,
ɔ	a	a	a	5, 108, 223,
ɔ	a	a	–	203, 474, 492b, 512,
ɔ	a	–	–	1,
ɔ	–	a	–	195, 278,
ɔ	a	–	a	18, 492,
ɔ	–	a	a	48, 51, 312, 363, 400b,
ɔ	–	–	a	15, 35_2, $150b_2$, 161, 216b, 248b, 263b, 295a, 309, 383,
a	a	a	a	19, 40, 44b, 64, 124, 150, 457, 470, 472, 511,
a	–	a	a	37, 147, 232, 504,
a	–	–	a	336,
–	–	a	a	105,
–	a	a	a	477,
ɔ	ᴅ	o	i	287,

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	ɔ	–	–	i	395, 406,	
	ɔ	ᴅ̃	ɔ	–	314,	
	ɔ	–	ɔ̃	a	360,	
	ɔ	ã	ã/a	ã	307,	
	ɔ	ᴅ	–	a/i	485,	
	ɔ	ᴅ	o	a/a·	85,	
	ɔ	a	ɔ/a	–	474,	
	ɔ	i/a	–	–	275/276,	
	o	o	o	a	137,	
	ɔ	e/ɔ	o	a	489,	
	ɔ	e	o	–	204,	
Residues:	ɔ	a	a	a·	134, 497,	Eliminating the Oriya item, the rest fits into the regular correspondence for /a/.
	ɔ	a	–	a·	231,	
	ɔ	a	a	i·	276,	
	ɔ/a	ᴅ	a	a·	131, 156,	This can be broken into two correspondences. In either case data is inconclusive to come to any conclusion.
	–	ᴅ	u	–	338,	
	–	ɔ	#	u·	487,	
	ɔ	ɔ	a	a·	197,	
	ɔ	a	o	–	228,	
	ɔ	–	o	o	84,	
	ɔ	e	a	–	376,	
	a/ɔ	ᴅ	a	a	267,	
	a	i	i	a	468,	
	–	–	o	a	96_2,	

Summary and discussion:

1.	ɔ	ᴅ	ɔ	a	18,	13,	10	41	*ɔ
1a.	ɔ	ᴅ	ɔ	#	–,	1,	–	1	
2.	ɔ	ᴅ	o	a	10,	6,	2	18	
2a.	ɔ	ᴅ	o	#	–,	3,	–	3	
3.	ɔ	ɔ	o	a	7,	1,	9	17	
4.	ɔ	ᴅ	a	a	2,	6,	1	9	
5.	ɔ	a	a	a	3,	7,	3	13	
6.	a	a	a	a	10,	5,	2	17	
7.	ɔ	ᴅ	o	i	1,	–,	2	3	
8.	ɔ	ᴅ̃	ɔ	–	–,	1,	–	1	
9.	ɔ	–	ɔ̃	a	–,	1,	–	1	
10.	ɔ	ã	ã/a	ã	1,	–,	–	1	

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11.	ɔ	ɒ	–	a/i	–,	1,	–	1
12.	ɔ	ɒ	o	a/a·	1,	–,	–	1
13.	ɔ	a	ɔ/a	–	–,	1,	–	1
14.	ɔ	i/a	–	–	–,	–,	1	1
15.	o	o	o	a	1,	–,	–	1
16.	ɔ	e/ɔ	o	a	1,	–,	–	1
17.	ɔ	e	o	–	–,	1,	–	1

(a) Correspondence 2 is a special case of 1. B/o/ occurs in correspondence with O/ɔ/, A/ɒ/ /ɔ/, H/a/ in final checked syllable of the root, and when followed by /u o i/ in the next syllable.

(b) Correspondences 1a and 2a are the same as 1 and 2 respectively for all but for Hindi. Assuming the loss of a Hindi vowel in the second syllable, the conditions for it are not recoverable from this data. It could also be argued that there was a consonant cluster in each of the items (examples 127, 145, 224, and 249) in the proto-language and that OAB show a svarabhaktic vowel. Because of the indeterminacy introduced by the absence of the Hindi vowel the correspondences are kept separate and the full forms are not reconstructed.

(c) Correspondence 3 is a special case of 1. A/ɒ/ is substituted by /ɔ/ when followed by /i u o/ in the next syllable.

(d) Correspondences 4 and 5 are special cases of 1. AB/a/ in correspondence with O/ɔ/ and H/a/ is found due to the reduction of consonant cluster and consequent lengthening of the preceding vowel. Some occurrences of B/a/ are due to vowel assimilation (examples 278, 363, 400b, 512).

(e) It is necessary to note that in examples 5, 18, 51, 108, 474, 485, there exist consonant clusters in one or the other of the languages. But in some other examples (such as 1, 203, 276, etc.) AB/a/ occurs in correspondence with O/ɔ/ and H/a/ without any direct evidence of consonant clusters in the cognates. In such cases a consonant cluster has to be reconstructed on structural grounds. Since there is no evidence of a nasal or a nasalised vowel in any of the cognates, a geminate consonant cluster is reconstructed for each of the latter cases.

(f) In correspondence 6 OABH a a a a, H/a/ is before a consonant cluster. This cluster, if it really does not exist in cognates, can be structurally reconstructed on the basis of the pattern available from those cognate sets in which we find H/a/ before consonant clusters in correspondence with OAB/a/. It may be concluded that the OAB/a/ in correspondence with H/a/ before CC is due to the reduction of the cluster and consequent lengthening of the preceding vowel. Since in the discussion of cluster patterns it has been established that a cluster could either be C_1C_1 or NC in the proto-language, a C_1C_1 cluster will be reconstructed in all such cases if there is no evidence for a cluster with a nasal. It may further be pointed out that in the infinitive forms of Hindi verbs a three-consonant cluster resulting from suffixation is reduced and falls in the pattern with the high frequency two-consonant clusters,

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though this hypothesis is open to further examination. On these grounds it can be said that 6 is a special case of 5 and so of 1.

(g) Correspondence 7 is a special case of 2 and so of 1. Hindi i-forms have a-forms dialectally (halna· 395); colloquially (chapan 406); both dialectally and colloquially (ganna· 287. In poetry gana·na· is also used); and with semantic difference (ḍabba· : ḍibba· 485).

(h) Correspondence 8 is a special case of 1. Assamese shows sporadic nasalisation.

(i) Correspondence 9 is a special case of 3 and so of 1. Bengali shows sporadic nasalisation.

(j) Correspondence 10 is a special case of 5 and so of 1. One is tempted to reconstruct a cluster of nasal + s, the reduction of which might give the nasalised vowel in OAB. But the Bengali doublet with non-nasalized vowel considered together with the Oriya item with a non-nasalized vowel will make such reconstruction suspect. So, here the nasalisation of the vowel in OAB is considered sporadic.

(k) Correspondence 11 is a special case of 7 (see discussion 6 above) and so of 1.

(l) Correspondence 12 is a special case of 2 and so of 1. The Hindi doublet with /a·/ may be due to the addition of the suffix(?). nakh : na·khu·n.

(m) Correspondence 13 is a special case of 5 and so of 1. Since reduction of cluster is the regular development in OAB, the doublet with /ɔ/ followed by a consonant cluster is considered a borrowing in Bengali.

(n) Correspondence 14 is a special case of 5. A/i/-form is indeterminate.

(o) Correspondence 15 is a special case of 1. Followed by /u/ in the next syllable, OAB show /o/ instead of ɔ-type vowel.

(p) Correspondence 16 is a special case of 1. A /e/ alternates with /o/ in this form. AB /o/ is due to the assimilation of the vowel to the following /u/.

(q) Correspondence 17 is a special case of 1. Followed by a high vowel in the next syllable, A/e/ and B/o/ are found.

These discussions show that all the correspondences listed and summarised above are in complementary distribution. So a single phoneme /ɔ/ is reconstructed for the correspondences 1-17.

(r) Thirteen items could be either 2 or 3 (-A). Nine items could be either 1, 2, or 3 (-BH). Eleven items could be 1, 2, or 3 (-B). Five items could be 4 or 5 (-A). Twelve items could be 1, 2, 3, 4, or 5 (-AB).

a	a	a	a·	13, 26, 33, 41, 57, 65, 71, 78, 93, 104, 122, 123, 132, 135, 148, 151, 153, 157, 184, 188, 205, 260, 270, 288, 304, 305, 306, 311, 340, 428, 431, 468, 507, 509, 511,
a	–	a	a·	15, 147, 213, 215, 240, 370, 389, 409, 485,
a	a	–	a·	48, 121, 152, 159, 198, 265, 342, 413,

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	a	–	–	a·	70, 369,	
	–	a	a	a·	391,	
	a	ă	a	a·	4,	
	a	a	a	a/ă·	21,	
	a	a	a	ă·	385, 483,	
	e	a	a	a·	1,	
	a	a	a	a·/i	142,	
	a/ɔ	ɒ	a	a·	131, 156,	
	e	a	a	–	31,	
	a	ɛ	ɛ	–	22,	
	a	ɛ	a	–	369,	
Residue:	a	o	–	a·	106,	
	a	a	a	e·	168/238,	Data inadequate to explain Hindi form. Rest fit in with the regular correspondence for /a/.
	a	ɒ	a	–	263,	
	e	–	a	–	23,	
	a	–	e	–	284,	
	a	–	a/e	o·	414,	
	a	i	i	a	468,	

Summary and discussion:

18.	a	a	a	a·	35,	18,	2	55	*a
19.	e	a	a	a·	1,	1,	–	2	
20.	a/ɔ	ɒ	a	a·	2,	–,	–	2	
21.	a	a	a	a·/i	1,	–,	–	1	
22.	a	ă	a	a·	1,	–,	–	1	
23.	a	a	a	a/ă·	1,	–,	–	1	
24.	a	a	a	ă·	2,	–,	–	2	
25.	a	ɛ	a	–	–,	1,	–	1	
26.	a	ɛ	ɛ	–	–,	1,	–	1	

(a) Correspondence 19 is a special case of 18. After the loss of a syllable -gɔ-, O/a/ in the first syllable is followed by /i/ in the next and subsequently raised by vowel assimilation.

(b) Correspondence 20 may be broken into two for convenience of discussion. There are two forms in Oriya, the form with /ɔ/ agreeing with Assamese and the form with /a/ agreeing with BH in correspondence. Here it is presumed that there were two competing forms at the Proto-stage.

(c) Correspondence 21 is the same as 18. The Hindi form with /i/ is a borrowing either external or dialectal.

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(d) Correspondences 22-24 are special cases of 18. In the absence of any evidence of a nasal the nasalisation in various languages is considered as sporadic.

The Hindi form with /a/ in correspondence 23 is marked by the -rp cluster as a borrowed item.

(e) Correspondence 25 is the same as 18 except Assamese. A/ε/ is indeterminate.

(f) Assuming that the AB/ε/ may be blamed on the reduction of the following consonant cluster, it may be considered as a regular correspondence for /a/. But the evidence here is inadequate and the assumption is open to question.

(g) On the basis of correspondences 18-25 an /a/ is reconstructed.

	i	i	i	i	127, 140, 304,
	i	i	–	i	482,
	i	–	–	i	263, 278, 473,
	i	i	e	–	346, 411, 423,
	i	–	e	i	318b,
	i	i	i	i·	61, 80, 98, 230, 237, 256, 427,
	i	i	–	i·	291,
	–	–	i	i·	7,
	–	i	–	i·	435,
	i	–	–	i·	45, 179, 221, 324,
	i	–	i	i·	214, 225, 234/280, 242,
	i	i	e	i·	58, 272,
	i	e	i	i·	191,
	i	i	i/ε	e·	347,
	e	ε	–	i·	265,
	i	i	i	≠	236,
	i	i	i	–	231, 501,
	i	i	–	≠	482,
	i	–	i	–	284,
	–	i	i	–	366,
	i	i	–	–	225, 248, 255, 277_2, 302, 309,
Residue:	i	i	i	u	439,
	i	u	u	u	108,

Summary and discussion:

27.	i	i	i	i	3,	1,	3	7	*/i/
28.	i	i	e	–	–,	1,	–	1	
29.	i	–	e	i	–,	1,	–	1	
30.	i	i	i	i·	7,	6,	6	19	*/i·/
31.	i	i	e	i·	2,	–,	–	2	
32.	i	e	i	i·	1,	–,	–	1	
33.	i	i	i/ε	e·	1,	–,	–	1	
34.	e	ε	–	i·	–,	1,	–	1	

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(a) Three items could be 27 or 30 (-H).

(b) Three items could be 29 or 31 (-H).

(c) Eight items could be 27, 30, 31, or 33 (-BH).

(d) One item could be 27, 30, or 33 (-OH).

(e) One item could be 27, 30, 32 or 33 (-AH).

(f) On the basis of correspondences 27, 28 and 29 /i/ is reconstructed. Correspondences 28 and 29 are special cases of 27. B/e/ occurs when followed by a low vowel in the next syllable.

(g) On the basis of correspondences 30-34 /i·/ is reconstructed. Correspondences 31-33 are a special case of 30. B/e/ and B/ε/ occur when followed by a low vowel in the next syllable. A/e/ in correspondence 32 is indeterminate. Hindi form with /e·/ in correspondence 33 has another variant /bik/. The data is insufficient to explain the variation. Correspondence 34 is a special case of 30. The item in Hindi is a borrowing from Persian sources. The low vowel O/e/ and A/ε/ may be due to the following low vowel. The fact that this borrowed item fits into the regular vowel correspondence indicates that this may be a very early borrowing.

	e	e	e	e·	98,
	e	–	e	e·	208, 496,
	e	ε	e	e·	62, 139, 193,
	e	ε	ε	e·	310, 317,
	–	ε	ε	e·	32,
	e	–	–	e·	251,
	e	ɒ	e	e·	350,
	e	e	ε	i	387,
	e	–	e	i·	353,
	e	e	e	–	352, 388,
	e	ε	e	–	402,
	e	ε	–	–	397,
	e	–	e	–	473,
Residue:	e	ε	ε	a	258,
	e	–	a	–	23,

Summary and discussion:

35.	e	e	e	e·	1,	2,	–	3	*e
36.	e	ε	e	e·	3,	1,	–	4	
37.	e	ε	ε	e·	2,	1,	–	3	
38.	e	ɒ	e	e·	1,	–,	–	1	
39.	e	e	ε	i	1,	–,	–	1	
40.	e	–	e	i·	–,	1,	–	1	

(a) On the basis of correspondences 35-40 /e/ is reconstructed.

(b) Correspondences 36-40 are special cases of 35. A/ε/ occurs in closed mono-

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syllables (examples 62, 139, 193, 310, 317, 397) and when followed by a low vowel in the next syllable (examples 32, 258, 265, 402). B/ɛ/ occurs followed by a low vowel in the next syllable (examples 32, 258, 310, 317, 387).

The Hindi forms with short and long /i/ alternate with forms with /e/. Note the morphophonemic alternation in Hindi dikha·na·: de·khna· and similar alternation of vowel in pi·s-: pe·s-.

(c) A/ɒ/ indicates alternation in the root vowel. This item is also listed in the final vowel list.

(d) One item could be 35, 36 or 37 (-AB). Two items could be 35 or 36 (-A). One item could be 36 or 37 (-BH). One item could be 35 or 36 (-AH).

	o	o	o	o·	27, 119, 486,
	o	–	o	o·	167, 218, 222, 424,
	o	–	–	o·	248,
	ɔ	o	o	o·	176,
	o	u	u	u	419,
	o	u	u	–	435,
	o	–	–	u	181,
	o	o	o	–	24, 254, 356,
	o	o	–	–	416,
	–	o	o	#	477,
	–	o	#	–	330,
	o	a	o	o·	290,
	u	u	u	o·	341,
Residue:	o	ɔ	o	–	28,
	o	ɒ	–	–	400,

Summary and discussion:

41.	o	o	o	o·	3,	4,	1	8	*o
42.	ɔ	o	o	o·	1,	–,	–	1	
43.	o	u	u	u	1,	1,	1	3	
44.	o	a	o	o·	1,	–,	–	1	
45.	u	u	u	o·	1,	–,	–	1	

(a) Correspondence 42 is a special case of 41. O/ɔ/ is followed by a retroflex consonant /ṇ/ and by a lower vowel immediately after that.

(b) Of the three items listed under 43, the first item (example 419) with B/u/ is the result of a following high vowel /i/. In the same item Hindi stem alternation cura·na·/co·ri· karna· shows the Hindi cognate with /o/. The Assamese is questionable.

In the second item (ex. 435) AB/u/ is due to the high vowel following in the next syllable.

The third item (ex. 181) is a borrowing from Perso-Arabic sources.

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(c) Correspondence 44 shows one low frequency correspondence. The consonant correspondence following this vowel is also aberrant and residual. In any case, this shows that the Assamese item does not belong here as a cognate. Eliminating the Assamese item, a regular vowel correspondence is available for /o/, but the following consonant correspondence is still residual.

(d) Six items [3 (-H) + 1 (-BH) + 1 (-OBH)] could be either 41, 42 or 43.

(e) Correspondence 45 is a special case of 41. OAB/u/ occurs when followed by high front vowel /i/ in the next syllable.

(f) On the basis of correspondences 41-45 an /o/ is reconstructed.

	u	u	u	u	44a, 102, 133, 212, 245, 443, 491,
	u	u	–	u	115, 179, 208,
	u	–	u	u	152, 250, 498,
	–	u	u	u	76,
	u	u	o	u	301,
	u	o	–	u	121 (same root as ex. 54),
	u	ɒ	o	u	357,
	u	u	u	u·	3, 141, 158, 200, 329, 455, 494,
	u	–	u	u·	189, 394,
	u	–	–	u·	356,
	u	u/o	u	u·	50,
	u	u	o	u·	328,
	u	o	o	u·	396,
	u	u	u	a	122,
	u	u	u	–	17_2, 55, 204, 295, 406,
	–	u	u	–	70, 211,
	u	u	–	–	72, 382, 394, 473,
	u	–	u	–	12, 265, 383,
	u	–	u	#	37,
	u	o	#	–	282,
Residue:	u	i	i	i	73, 178,
	u	i	e	i	367,
	u	ɒ	o	a·	212,
	ũ	–	–	ũ	76b,
	u	o	o	o·	53, 54,
	u	ɔ/ɒ	u	–	20,

Summary and discussion:

46.	u	u	u	u	7,	7,	–	14	*u
47.	u	u	o	u	1,	–,	–	1	
48.	u	o	–	u	–,	1,	–	1	
49.	u	ɒ	o	u	1,	–,	–	1	

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50.	u	u	u	u·	7,	2,	1	10	*u·
51.	u	u/o	u	u·	1,	–,	–	1	
52.	u	u	o	u·	1,	–,	–	1	
53.	u	o	o	u·	1,	–,	–	1	
54.	u	u	u	a	1,	–,	–	1	

(a) There are a good number of correspondences for /u/ and /u·/ in all four languages. However, there are a few correspondences with B/o/. In all such examples B/o/ occurs followed by the low vowel /a/ in the next syllable. There is good reason to believe that in cases where A/o/ or A/ɒ/ occur in correspondence with /u/ in other languages, it is due to a following low vowel. But in examples like 20 and 54 (both residues) the vowel in the second syllable is possibly lost. In example 50 (correspondence 51) the Assamese doublet with /o/ may be a borrowing.

(b) Correspondence 54 presents a Hindi form with /a/ in correspondence with OAB /u/. The initial br- cluster marks the Hindi item as a borrowing and the Hindi doublet is the same item with simplification of the initial cluster. Ignoring the Hindi item, the rest fit into the regular vowel correspondence pattern.

(c) Six items could be 46 or 50 (-H). Two items could be 46 or 50 (-OH). Four items could be 46, 47 or 50 (-BH). Four items could be 46, 50 or 51 (-AH). One item could be 48 (-BH).

(d) On the basis of correspondences 46 to 49 an /u/ is reconstructed and on the basis of correspondences 50 to 54 an /u·/ is reconstructed.

G. FINAL SINGLE VOWELS

ɔ	ɒ	ɔ	o·	545, (see the medial /ɔ/ correspondence) In OAB there is root vowel alternation.
a	a	a	a·	53, 131, 156, 256, 258, 292, 319, 375,
#	a	a	a·	345,
a	#	a	a·	54, 56,
a	–	a	–	23, 101, 106,
a	a	–	–	225, 262b,
a	#	a	–	512,
a	–	–	a·	179c, 221, 251b,
a	a	–	a·	237,
a	i	a	a·	134 (R),
a	a	o	a·	197 (R), 212 (R),
i	i	i	i	205, 271, 491,
i	i	i	i·	104, 113, 142, 149, 157, 191, 341, 488,
i	–	i	i·	67, 84, 135, 240, 485,
i	i	–	i·	243, 318,
–	i	–	i·	476,

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–	i	i	i·	487,
i	i	≠	≠	114,
–	i	i	–	138,
i	–	i	–	473b, 476b,
i	i	i	u·	151,
u	u	u	u	57, 489,
u	o	o	u·	396 (see medial /u/ correspondences and discussion (1) thereof).
u	u	u	–	118,
u	u	u	≠	132,
e	i	e	e·	300,
e	ɒ	e	e·	350 (see the medial /e/ correspondence and the following discussion).
e	e	–	–	440,
e	i	e	–	437 (R),
o	o	o	o·	321,
o	o	–	o·	337,

Single final vowel correspondences do not give any new information. They corroborate the pattern and the conclusion arrived from the medial vowel correspondences. Residue correspondences are marked by (R).

H. NON-INITIAL VV AND VS CLUSTERS

ɔi	ɔi	–	–	149 (f),
ɔ	ɒ	ɔ	ai	30,
ɔyɔ	ɒe	ɔe	ay	73 (f),
ɔyɔ	ɒe	ɔe	–	294 (f),
ai	ai	ai	a·i·	113, 136 (f),
ai	–	ai	–	390 (f),
ai	ai	–	a·y	28 (f),
ayɔ	ae	–	a·y	381 (f),
a	–	ai	a	185,
ei	–	ɛ	≠	318 (f),
oi	ɒe/ɒy	ɔi	o·y	60,
ui	ui	ui	o·	426 (f),
ɔu	ɔu	–	au	344,
ɔu	–	ɔo	au	227,
ɔu	ɒ	o	a	114,
ɔu	–	ɔ	–	476,
au	au	–	au	38 (f) AH show extensions.
–	–	aoa	ava·	160 (f),

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ă	aŏ	ă	a·	206 (f),
iɔ	ia	–	–	6 (f),
iɔ	i	–	–	116 (f),
iɔ	ɪ/i	i	i·	488 (f),
ia	ia	e	–	228 (f),
uɔ	–	a	–	164 (f),
u	u	≠	va	188,
ua	–	oa	va	15,
ua	ua	a	va·	481,
uă	–	ŏă	–	361 (f),
uă	ŏa	ŏă/ŭă	ŭă·	154 (f),
–	–	uo/ua	u·a	49,

The evidence here is too fragmentary, too inadequate and too unpatterned to yield to any kind of systematic treatment and so it is difficult to reconstruct either vowel clusters or clusters consisting of vowel and semivowel for the proto-language. The inconsistency would be clearer if we consider some examples. In correspondence to O/ɔi/ and A/ɔi/ there is no BH counterpart, whereas for O/ɔ/, A/ɒ/ and B/ɔ/ there is H/ai/ correspondence. The latter correspondence set does not fit in with the regular /ɔ/ correspondences nor does it give us any clue for the reconstruction of vowel clusters.

There is apparent contrast between Hindi /ai/ and /ay/ as shown in the correspondence sets above. But the item with H/ay/ is a learned borrowing as indicated by the initial hr- cluster.

The Hindi correspondence for O/oi/, A/ɒe/ or /ɒy/ and B/ɔi/ is /o·y/, whereas for OAB/ui/ the Hindi correspondence is H/o·/.

A/ɔu/ and /ɒ/, B/ɔo/, /o/ and /ɔ/, and H/au/ and /a/ in correspondence to O/ɔu/ present too disorganised a picture for systematic reconstruction.

The low frequency H/v/ has already been shown as a borrowing. So the items with H/ava·/, H/va/ and H/va·/ may be considered as borrowed items. Eliminating those items from consideration, the rest lack pattern and show too much aberrance in correspondence.

In consideration of all these factors it is deemed necessary not to reconstruct any VV and VS cluster for the proto-language. All VV and VS cluster correspondences are considered as residues for the present purpose and judgment suspended until further data is available.

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IV

DEVELOPMENT OF PROTO-PHONEMES IN THE FOUR LANGUAGES UNDER STUDY

A. CONSONANTS

*/p/ > O/p/, A/p/, B/p/, H/p/

*/ph/ > O/ph/, A/ph/, B/ph/ initially, /p/ finally, /ph∼p/ medially, H/ph/ initially, with allophonic development of [f] finally (?). [Note: With the data of the list used here [f] is allophonic in Hindi. More data would show that [f] is phonemic]

*/b/ > O/b/, A/b/, B/b/, H/b/

*/bh/ > O/bh/, A/bh/, B/bh/ initially, /b/ finally, /bh∼b/ medially, H/bh/

*/t/ > O/t/, A/t/, B/t/, H/t/

*/th/ > O/th/, A/th/, B/th/ initially, /t/ finally (?), /th∼t/ medially (?), H/th/

*/d/ > O/d/, A/d/, B/d/, H/d/

*/dh/ > O/dh/, A/dh/, B/dh/ initially, /d/ finally, /dh∼d/ medially (?), H/dh/

*/ṭ/ > O/ṭ/, A/t/, B/ṭ/, H/ṭ/

*/ṭh/ > O/ṭh/, A/th/, B/ṭh/ initially, /ṭ/ finally, /ṭh∼ṭ/ medially, H/ṭh/

*/ḍ/ > O/ḍ/, A/d/, initially, /r/ medially, B/ḍ/, H/ḍ/ initially, medial flap allophone became phonemic at a later time (see phonemic statement).

*/ḍh/ > O/ḍh/, A/dh/, initially, /r/ medially, B/ḍh/ initially, /ḍ/ finally, /ḍh∼ḍ/ intervocalically (?) H/ḍh/

*/č/ > O/č/, A/s/, B/č/, H/č/

*/čh/ > O/čh/, A/s/, B/čh/ initially, /č/ finally (?) /čh∼č/ medially (?), H/čh/

*/ǰ/ > O/ǰ/, A/z/, B/ǰ/, H/ǰ/

*/ǰh/ > O/ǰh/, A/z/, B/ǰh/ initially, /ǰ/ finally, /ǰh∼ǰ/ medially (?), H/ǰh/

*/k/ > O/k/, A/k/, B/k/, H/k/

*/kh/ > O/kh/, A/kh/, B/kh/ initially, /k/ finally, /kh∼k/ medially, H/kh/

*/g/ > O/g/, A/g/, B/g/, H/g/

*/gh/ > O/gh/, A/gh/, B/gh/ initially, /g/ finally, /gh∼g/ medially, H/gh/

*/m/ > O/m/, A/m/, B/m/, H/m/

*/n/ > O/n/, A/n/, B/n/, H/n/

*/ṇ/ > O/ṇ/ occurs only non-initially, A/n/, B/n/, H/n/

*/r/ > O/r/, A/r/, B/r/, H/r/

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*/l/ > O/l/, A/l/, B/l/, H/l/
*/ḷ/ > O/ḷ/ occurs non-initially, A/l/, B/l/, H/l/
*/s/ > O/s/, A/x/ initially, /h/ medially and finally, B/š/, H/s/
*/h/ > O/h/, A/h/, B/h/, H/h/

B. VOWELS

*/ɔ/ > O/ɔ/, A/ɒ/ /ɔ/ /a/ (*ɔCC > aC), B/ɔ/ /a/ (under same condition as Assamese)
*/a/ > O/a/, A/a/, B/a/, H/a·/
*/i/ > O/i/, A/i/, B/i/, H/i/
*/i·/ > O/i/ /e/, A/i/ /e, ɛ/, B/i/ /e, ɛ/, H/i·/. (OAB/e/ or AB/ɛ/ when followed by a low vowel in the next syllable.)
*/u/ > O/u/ /o/, A/u/ /o/, B/u/ /o/, H/u/. (OAB/o/ when followed by a low vowel in the next syllable).
*/u·/ > O/u/ /o/, A/u/ /o/, B/u/ /o/, H/u·/
*/e/ > O/e/, A/e/ /ɛ/, B/e/ /ɛ/, H/e/. (AB/ɛ/ when followed by a low vowel in the next syllable.)
*/o/ > O/o/, A/o/ /ɔ/, B/o/ /ɔ/, H/o/. (AB/ɔ/ when followed by a low vowel in the next syllable.)

The following statements may be made regarding the development of the consonant clusters in the various languages.

1. *NC clusters*

Oriya and Hindi retain most of the clusters.

Two different processes are to be seen in both AB:

i.a. Loss of the stop element – A180, 213; B180.
b. Loss of the stop element with compensatory lengthening of the preceding vowel – A56, 492.
ii.a. Loss of the nasal with lengthening and nasalisation of the preceding vowel – A35; B35, 56, 163.
b. With subsequent loss of nasalisation of the vowel – B101, 181; H363. See also H56, 95.

From the point of view of the regularity of these developments the existing NC clusters in AB may be considered as borrowings or unassimilated retentions.

2. *Geminate clusters*

C_1C_1 > C in OA.

C_1C_1 > C_1C_1 in BH.

This is the high frequency statement. Whenever a geminate cluster is retained in Oriya, it is in free variation with a single consonant.

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V

STATEMENT OF RELATIVE CHRONOLOGY

The shared innovations which separate *OAB from Hindi are as follows:

1) Vowel assimilation in *OAB, which is absent in Hindi.

2) The eight-vowel system of the Proto-OABH is reduced to a six-vowel system in *OAB due to the merger of long and short i, u into a single phoneme each.

The innovations shared by AB, which separate them from Oriya, are as follows:

1) Retroflex and dental nasals fall together in AB.

2) Retroflex /ḷ/ and the lateral /l/ fall together in AB.

3) /ḍ/, /ḍh/ fall together medially and become /ḍ/ in AB. This /ḍ/ subsequently falls together with /r/ in the medial position in Assamese.

4) /e/ > /e/ and /ɛ/ in identical condition in AB when followed by a low vowel (although Assamese has /ɛ/ in closed monosyllables).

The innovations which separate Assamese from Bengali are as follows:

1) /ḍ/, /ḍh/ and /r/ fall together in intervocalic position.

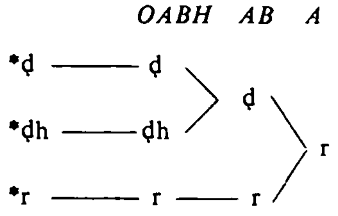
2) Retroflex and dental series consonants fall together elsewhere.

3) /č/, /čh/ fall together as /s/ and /ǰ/, /ǰh/ fall together as /z/.

4) /s/ becomes /x/ initially and falls together with /h/ medially.

The chronological development of some of these changes may be further illustrated with the help of diagrams.

a) The four languages show various developments with respect to the retroflex stop series and the trilled /r/. The changes, as they have affected these phonemes in the medial position, may be graphically presented as follows:



The first development is allophonic. Subsequently a phonemic coalescence takes place in both Assamese and Bengali.

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b) The palatal affricates, the sibilant and the glottal fricative undergo changes which affect one another. These changes are presented graphically as follows:

	OBH		
*č ——	č	But in Assamese:	
*čh ——	čh	*č, *čh > s,	*ȷ, *ȷh > z
*ȷ ——	ȷ		
*ȷh ——	ȷh		

c) The development of */s/, */h/ in various languages is as follows:

	OBH	
*s ——	s	
*h ——	h	But in Assamese:

*s —— x (initially)
*s > h medially
*h —— h

The change of *č, čh > s in Assamese must be later than the development affecting */s/ and */h/. Had this not been the case we would not find a phoneme /s/ in Assamese.

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VI

DRAWING OF THE FAMILY TREE

The family tree we draw on the basis of this study is a complex one. On the grounds of closeness of relationship different levels of proto-languages and the subsequent co-ordinate[1] member languages have been shown. This hierarchy of minimal groups[1] has been set up working backwards from the modern languages by using the comparative method, which has been demonstrated in the earlier pages. It is interesting however to note one thing from the point of result. In the futile controversy to prove the antiquity of their languages most Indian scholars have missed the significant fact of relationship among these languages. In most studies of Indo-Aryan languages OAB have been grouped together without any attempt to examine their relationship. As early as the 1870's Sir John Beams wrote that "At a period when Oriya was already a fixed and settled language, Bengali did not exist. The Bengalis spoke a vast variety of corrupt forms of Eastern Hindi."[2] This statement has to be viewed in the context of the scholarly discussion of that time. Though somewhat naive, this statement hits at the point that Oriya branched off from the parent language before Bengali was separated from what was known as the Eastern group. The second part of Beams' statement is yet to be put to rigorous examination in terms of the application of this method. But the results presented here support the inference of the first part of his comment that Oriya branched off earlier and was separated from AB before AB were separated from each other.

The changes which cause the split and characterise one or a group of languages are listed under that branch to give a complete picture at a glance.

[1] Dyen, Isidore, "Language distribution and migration theory", *Lg.*, 32, No. 4 (1956), pp. 612.
[2] Beams, Sir John, *Comparative grammar of four Indo-Aryan Languages*, vol. 1, pp. 120.

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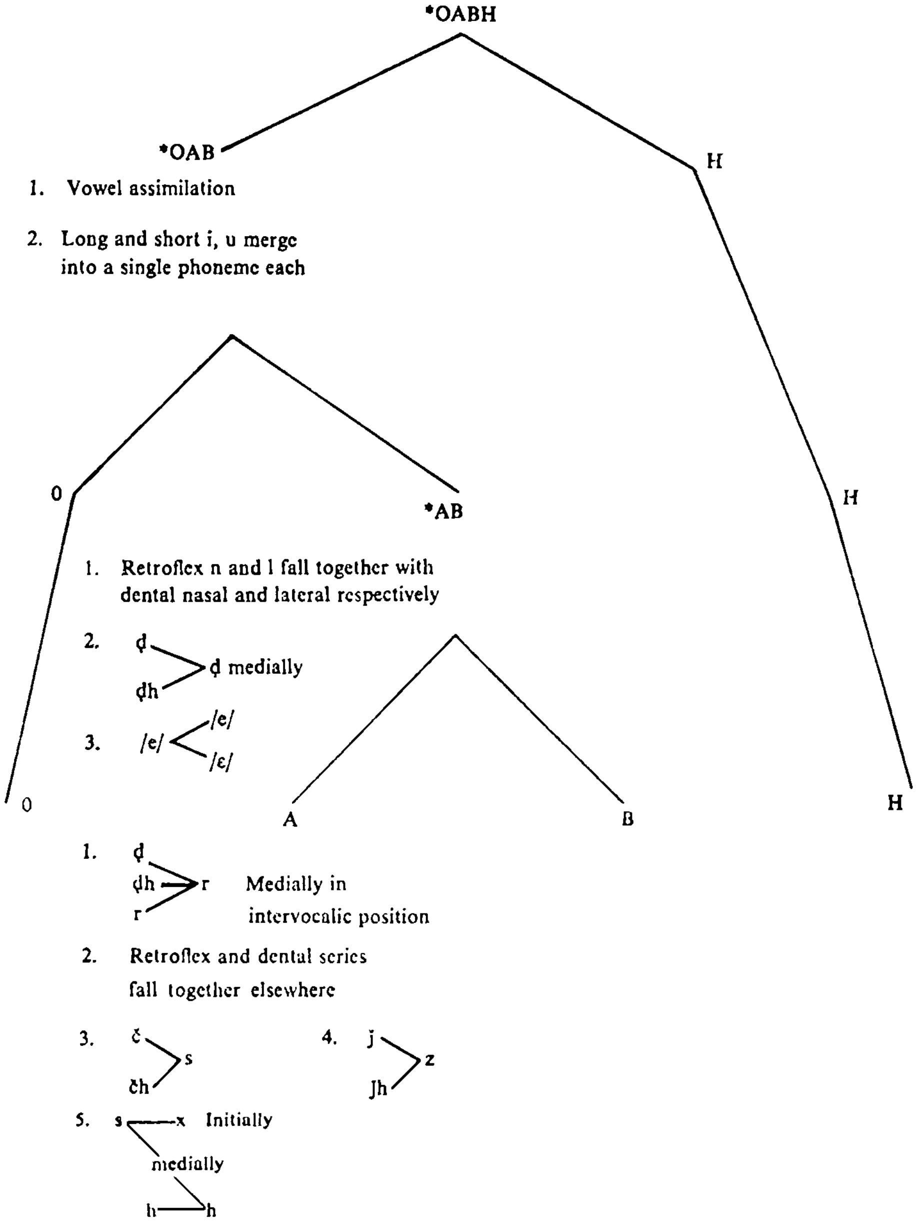

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APPENDIX

Listed below is Prof. G. H. Fairbanks' list of items to which changes in Assamese and Hindi and the addition of Oriya material has been made. The serial numbers correspond to the original list except in those cases where for convenience of marking correspondences, subdivisions with (a), (b), and (c), ... etc. have been introduced. Items representing the valid correspondences have been reconstructed and the proto-form is listed in the extreme right hand column marked with an asterisk. The items or the serial numbers considered unrelated are marked with a +. The items for which the reconstructed forms are not given and yet are not marked are considered as residue. The reasons for considering them so have been brought out while discussing the correspondences.

	O	*A*	*B*	*H*	*English gloss*	
1a.	bəkəḷɔ	bakəli	—	—	bark (of tree)	*bəkkəḷ-
b.	čheli	sal	čhal	čha·l	bark (of tree)	*čhal-
	O/e/ followed by /i/ in the next syllable.					
+2.	koḷi	zamuk, zamu	phəl	be·r	berry	
3.	phulɔ	phul	phul	phu·l	flower	*phu·l-
4.	ghasɔ	ghăh	ghaš	gha·s	grass	*ghas-
5.	pətrɔ/ pətɔrɔ	pat	pata	patta·	leaf	*pətt-
	Oriya forms with -tr- and -tər- are borrowings from Sanskrit.					
6.	siɔ	xia	+šekoḍ	+jaṛ, +mu·l	root	
7.	+mənǰi	+guti/xɒ̃s	biči	bi·j	seed	
8.	gəčhɔ	gɒs	gačh	+pe·ṛ	tree	*gəččh-
9.	pədmɔ	pɒdum	pəddo	+kamal	lotus	
	-dm- indicates Sanskrit borrowing. Bengali -dd- is an assimilation of -dm-.					
10.	phəḷɔ	phɒl, +guti	phəl	phal	fruit	*phəḷ-

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+11.	—	tan guti	badam	khaju·r	nut	
12a.	kɔpa	kɒpah	—	kapa·s	cotton	*kɔpa-
	Final consonant indeterminate.					
b.	tuḷa	—	tulo	—	cotton	*tuḷ-
13a.	ḍaḷɔ	dal	ḍal	ḍa·l	branch	*ḍaḷ-
+b.	—	thani	—	tahni·	branch	
+14.	nɔḍa	khɛr	khɔḍ	bhu·sa·	straw	
15a.	ǰɔntu	zɒntu	—	—	animal	*ǰɔntu-
b.	ǰanuar	—	ǰanoar	ǰa·nvar	animal	
	H. -nv- indicates a loan. OB vowel cluster also indicates a borrowing.					
c.	praṇi	prani	—	—	animal	
	pr- indicates a loan.					
d.	pɔsu	—	—	pašu	animal	
	Hindi -š- indicates borrowing.					
16.	pɔkhi	pɔkhi	pakhi	pakṣi·	bird	*pɔkkh-
	Final vowel is indeterminate as to length. Hindi -ks- indicates a learned borrowing.					
17.	kukurɔ	kukur	kukur	+kutta·	dog	*kukur-
18.	pɔkhi	pakhi	+palɔk	pankh	feather	*pɔnkh-
19.	mačhɔ	mas	mačh	mačhli·	fish	*mɔččh-
20.	ukuṇi	okɒni, ukɔni	ukun	+ǰū·, ǰuā·	louse	*ukun-
	Assamese /ɔ/ or /ɒ/ is due to the low vowel in the following syllable. But the occurrence of a low vowel there in correspondence to OB/u/ is indeterminate.					
21.	sapɔ	xap	šap	sarp, sā·p	snake	*sap-
	The Hindi form with -rp is a loan.					
22.	lanǰɔ	lɛz, nɛz	lɛǰ	+pū·čh	tail	*lanǰ-
23a.	ḍeṇa	—	ḍana	—	wing	
b.	pɔkhi	pakhi	—	pankh	wing	(same as 18)
24.	pokɔ	pok	poka	+ki·ɽa·	worm	*pok-
25.	—	bandɒr	bãdɔr	bandar	monkey	*bɔndɔr-
26.	hati	hati, hãti	hati	ha·thi·	elephant	*hat(h)i·
	The aspiration is indeterminate because of inadequacy of data.					
27.	ghoḍa	ghora, ghõra	ghoḍa	ghoɽa·	horse	*ghoḍa
28a.	gai	gai	—	ga·y	cow	
	Vowel cluster indicates borrowing.					
b.	goru	gɔru	goru	—	cow	

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+29.	bilei	mekuri/ birali	beral	billi·	cat	
30.	bɔḷɔdɔ	bɒlɒdh	bɔlod	bail	bull	*bɔḷɔd
	With this one example what is involved in Hindi is indeterminate.					
31.	čheḷi	sagɔli	chagol	—	goat	*chagɔḷ-
32.	+meṇḍha	bhɛra	bhɛḍa	bhe·ṛ	sheep	*bheḍ-
33.	baghɔ	bagh	bag	ba·gh +ci·ta·	tiger	*bagh-
34.	siŋhɔ	xiŋhɒ	šinghɔ	+še·r	lion	*singh-
35a.	hɔŋsɔ	pati hãh	hãs	—	duck	
b.	bɔtɔkɔ	—	—	badak, batax	duck	
	Hindi /x/ would make the item suspect as a loan. OH t-d correspondence is also unusual. This item is an Arabic loan word.					
36.	oṭɔ	ut	uṭ	ũṭ	camel	*uṭ-
	Oriya /o/ because of the low vowel in the following syllable. Hindi nasalization is sporadic.					
37.	bačhuri	+poali	bačhur	bačhṛa·	calf	*bɔččh-
	Though the vowel following in OB fits into the regular pattern, its correspondence with Hindi ≠ is unusual.					
38.	kau	kauri	+kag	kauva·	crow	
	Vowel cluster is irreconstructible.					
+39.	musa	nigɔni, nigɒni	īdur	cu·ha·	mouse	
40.	mačhi	makhi	mačhi	makkhi·	fly (insect)	*mɔkkhi·
41.	bhalu	bhaluk	bhaluk	bha·lu· +ri·čh	bear	*bhalu·-
42.	siŋg(h)ɔ (see 34)	xiŋ	šiŋ	sĩ·gh	horn (of bull)	*singh
+43.	meṇḍha čhua	bhɛra	bhɛḍar bačča	memna·	lamb	
44a.	mɔhu	mɔu	mɔ̃u	madhu	bee	*mɔdhu
+b.	mačhi (see 40)	makhi	mačhi	makkhi·	bee	
45a.	čilɔ	—	—	ci·lh	eagle	
	-lh marks this as loan.					
b.	igɔlɔ	igɒl	igɔl	—	eagle	*igɔl-
+46.	gɔdhia baghɔ	kukur-nesiya bagh	nekḍe	bheriya·	wolf	
47.	hɔ̃sɔ	hãh	rajhãš	hans	goose	

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48a.	čhalɔ	sal	—	kha·l	hide (animal)	*čhal-
b.	čɔmɔḍa	samra	čamḍa	čamṛa	hide (animal)	*čɔmm-
49.	+ghusuri	+gɔhɔri	šuor šuar	su·ar	pig	*su·ɔr.

Bengali doublet with /o/ may be because of the contiguous /u/.

50.	luṇɔ	lon, nun	nun	nu·n namak	salt	*lu·ṇ-, nu·ṇ-
51.	pɔthɔrɔ	+xil	pathor	patthar	stone	*pɔtthɔr-
52.	hati dantɔ	hãtir dat	hatir dãt	ha·thi· dã·t	ivory	(see 26) *dant-
53.	luha	lo, loha	loha	lo·ha·	iron	

Reconstruction of *luha would explain OAB; the AB/o/ being due to the following low vowel. But H/o·/ remains unexplained. Reconstruction *lo·ha may explain ABH, but O/u/ remains unexplained.

54.	suna	xon	šona	so·na·	gold	similar case as 53.
55a.	rupa	rup	rupo	—	silver	*rup-
b.	čandi	—	—	čã·di·	silver	*čandi·
56.	tɔmba	tam	tãba	tã·ba·	copper	*tɔmba
57.	dhatu	dhatu	dhatu	dha·tu	metal	*dhatu
58.	pitɔḷɔ	pitɒl	petol	pi·tal	brass	*pi·tɔḷ-
+59.	sɔŋkhɔ mɔlɔmɔlɔ pɔthɔrɔ	marbɒl	marbel	saŋgmar- mar	marble	Loan words
60.	koila	kɒyla, kɒela	kɔila	ko·yla·	coal	

Vowel cluster in OAB and -yl- cluster in AH mark it as loan.

61.	piṭhi	pithi	piṭ	pi·ṭh	back (body)	*pi·ṭh-
62.	peṭɔ	pɛt	peṭ	pe·ṭ	belly	*peṭ-
63.	rɔktɔ	+tɛz	rokto	rakt, +khun	blood	

Doublet in H and -kt in OBH indicate borrowing.

64.	haḍɔ	har	haḍ	haḍḍi	bone	*hɔḍḍ-
65.	kanɔ	kan	kan	ka·n	ear	*kan-
66a.	—	sɔku	čok	—	eye	*čɔku

The loss of the final u in Bengali is accounted for. It is assumed that the following high vowel was responsible for B/o/.

b.	akhi	—	—	ã·kh	eye	*akh-.

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Hindi shows sporadic nasalization.

67.	čɔrbi	+tɛl	čorbi	čarbi·	fat (grease)	

Bengali shows /o/ followed by /i/ in the next syllable. -rb- indicates borrowing.

+68.	padɔ	bhɔri pɒta	paer pata	pair	foot	
69.	ɔntɔ	+bhuru	+naḍibuḍi	ā̆·t	guts	*ɔnt-
70a.	baḷɔ	—	—	ba·l, +keš	hair	*baḷ-
b.	—	suli	čul	—	hair	*čul-
71.	hatɔ (See 26)	hat	hat	ha·th	hand	*hat(h)-
72.	muṇḍɔ	mur	+mata	+sir	head	*muṇḍ-
73.	hrudɔyɔ	hridɒe	hridɔe	hridɔyɔ	heart	

hr- marks it as a borrowing.

+74.	padɔ	bhɔri	pa	ṭā̆·g	leg	
+75.	pḷiha	zɒkrit	pile	dil	liver	
76a.	—	mukh	muk	mukh	mouth	*mukh-
b.	muhɔ̃	—	—	mũh	mouth	*mũh-
+77.	bekɔ	diŋi	ghaḍ	gardan	neck	
78.	nakɔ	nak	nak	na·k	nose	*nak-
79.	čhalɔ	sal	+čamḍa	kha·l	skin	*čhal-

Hindi item with kh- is a dialect borrowing.

80.	ǰibhɔ	zibha	ǰib	ǰi·bh	tongue	*ǰi·bh-
81.	dantɔ	dā̆t ~ dat	dā̆t	dā̆·t	tooth	*dant-
+82.	aŋguṭhi	aŋuli	aŋul	ungli·	finger	
+83.	buḍha aŋguṭhi	bhɔrir aŋuli	paer aŋul	anguli ungli·	toe	
84.	kɔhuṇi	+kila kuti	konui	kohni·	elbow	*kɔhuṇi·
85.	nɔkhɔ	nɒkh	hater nok	nakh, na·khu·n	fingernail	*nɔkh-,

Suffix may be responsible for long vowel in the Hindi doublet.

86.	kandhɔ	kandh	kā̆d	kandha·	shoulder	*kɔndh-
87.	muhɔ̃	mukh	muk	+čehra·	face	

(see 76. Though Oriya muhɔ̃ does not mean 'mouth' it has been listed there as the obvious cognate)

88.	oṭhɔ	ǒth ~ oth	+ṭhoṭ	ǒth, +hǒṭh	lip	*oth- (?)
89.	kɔbǰi	+hatɒr gathi	kobǰi	+kala·i	wrist	-bǰ- indicate borrowing
+90.	goiṭhi	gerua	gaḍali	ěṛi·	heel	

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+91.	bɔḷagɔṇṭhi	khar gathi	paer gaṭ	gaṭṭa·	ankle	
92.	kɔpaḷɔ	kɒpal	kɔpal	+ma·tha·	forehead	*kɔpaḷ-
93.	galɔ	gal	gal	ga·l	cheek	*gal-
+94.	papuli	hatɒr tɔlua	pater pata	hathcli·	palm (hand)	
95.	ɟɔŋghɔ	+kɒrɒŋɒn	+uru	jā̃·gh	thigh	*ɟɔngh-
96.	+ɔṇṭa	+kɒ̃kal	komor	kamar	waist	
+97.	luhɔ	sɔkulo	čokerɟɔl	ā̃·su·	tear (eyes)	
98a.	dehɔ	deh	deho	deh	body	*deh-
b.	sɔrirɔ	xɔrir	šorir	šari·r	body	H/š/ indicates borrowing.
+99.	oṭhɔ	thutɔri	thutni	thoḍhi·	chin	
100.	gɔḷa	gɒl	gɔla	gala·	throat	*gɔḷ-
101.	pɔnjɔra	+kami har	paɟra	+pasli	rib	*pɔnj(ɔ)ra
	The vowel in parenthesis is indeterminate.					
102.	muṭha, muṭhi	muthi	muṭho	muṭṭhi·	fist	*muṭṭh-
+103.	phus phus	hā̃ophā̃o	phušphuš	phe·phaṛa	lung	
104.	daḍhi	dari	daḍi	da·ḍhi	beard	*daḍhɟ·-
105.	+chua	+kesua	bačča	bacca·	child	*bɔčča (?)
	Persian loan word.					
106a.	baba	—	baba	—	father	*baba
b.	bapa	bopai	—	ba·p, +pita·	father	
	Kinship terms are almost always divergent in various languages. Assamese though connected is hard to explain.					
107.	bɔrɔ	giriɛk	bɔr	+pɔti	husband	*bɔr-
108.	mɔṇisɔ	manuh	manus	manuṣya +a·dmi·	man	
	-sy- marks it as a learned borrowing. There is far too much divergence in the vowel correspondence in the 2nd syllable, to put it back in the proto-language. Possibly this item is borrowed into all these languages and following the general pattern we get a long vowel /a/ in the first syllable of AB due to the reduction of -sy- cluster.					
+109.	bou	ai	mā̃	ma·ta·	mother	
+110.	mɔṇisɔ	purux	lok	vyakti	person	
111.	+stri	pɒtni	+bou	patni·	wife	
	-tn- indicates Skt borrowing.					
+112.	maikinia	tirota	mē̃lok	aurat	woman	
113.	bhai	bhoi	bhai	bha·i	brother	*bhai·
114.	bhɔuṇi	bhɒni	bon	bahin	sister	*bhɔuṇi

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Hindi shows complicated metathesis. Bengali shows a contracted form with no initial aspiration.

115.	puɔ	putrɒ	+čhele	putr	son	

-tr- indicates Skt. borrowing.

116.	jhiɔ	zi	+mẽẽ	+putri·	daughter	*jhi-
+117.	meṇḍha ɟɔgaḷi	bhɛra rɔkhia	rakhal	gaṛariya·	shepherd	
118.	bɔndhu	bɒndhu	bondhu	+došt	friend	*bɔndhu
119.	dhoba	dhoba	dhoba	dhobi·	washerman	*dhob-
120.	kɔmarɔ	kɒmar	kamar	+luha·r	blacksmith	*kɔmar-
121.	sunari	xonari	+šɛkra	suna·r	goldsmith	*sunar-
122.	bamhuṇɔ	bamun	bamun	bra·mhaṇ ba·mhan	brahman	*bamhuṇ-

Hindi br- marks it as loan. The doublet retains the same form with reduction of cluster.

123.	nati	nati	nati	na·ti·	grandson	*nat-
124.	natuṇi	natini	natni	natni·	grand-daughter	*nat-
+125.	ɟeɟema	burhi ai	ṭhakuma	da·di·, a·ɟi·	grand-mother	
+126.	ɟeɟebapa	kɒka	ṭhakurda	ba·pa·, a·ɟa·	grandfather	
127.	bidhɔba	bidhɒba	bidhoba	vidhva·	widow	
128.	sɔtru	xɔtru	šotru	šatru, +dušman	enemy	

H/š/ and medial -tr- in all languages indicate Skt borrowing.

+129.	putura	bhagin	bhaipo	bhati·ɟa·	nephew	
+130.	ɟhiari	bhagini	bhaiɟhi	bhati·ɟi	niece	
131.	rɔɟa, raɟa	rɒza	raɟa	ra·ɟa·	king	*rɔɟa, *raɟa
132.	sasu	xahu	šašuḍi	sa·s	mother-in-law	*sasu
133.	sɔsurɔ	xɔhur	šošur	sasur	father-in-law	*sɔsur-
134.	sɔḷa	+zetheri khul xali	šala	sa·la·	brother-in-law	
135.	saḷi	+zexahu	šali	sa·li·	sister-in-law	*saḷi·
136.	jwãi	zõai	ɟamai	jama·i, +da·ma·d	son-in-law	
137.	bohu	boari	čheler bou	bahu·	daughter-in-law	*bɔhu-

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	OAB/o/ followed by /u/ in the next syllable. Assamese -ari is an extension.					
138.	+paũsɔ	sai	čhai	+ra·kh	ashes	*čhai
139.	meghɔ	mɛgh	meg	megh, +ba·dal	cloud	*megh-
140.	dinɔ	din	din	din	day	*din
141.	dhuḷi	dhuli	dhulo	dhu·l	dust	*dhuḷ-
142.	maṭi	mati	maṭi	ma·ṭi· miṭṭi	earth (soil)	*maṭi·
143.	+niã	+zui	agun	a·g	fire	*ag-
+144.	kuhuḍi	kuɔli	kuasa	kuhra·	fog	
145.	bɔrɔphɔ	bɒrɒph	bɔrɔp	varfa	ice	*bɔrɔph-
	H/v-/ and -rf- indicate borrowing.					
146.	hrɔdɔ	hrɒd	hrod	+jhi·l	lake	
	hr- indicate borrowing.					
147.	pɔrbɔtɔ	pɒrbɒt	—	—	mountain	
	-rb- indicate borrowing.					
148.	rati	rati, +nixa	rat	ra·t	night	*rat-
149a.	nɔdi	nɔdi	nodi	nadi·	river	*nɔdi·
b.	nɔi	nɔi	—	—	river	
	May be a later simplified form from nɔdi.					
150a.	rasta	rasta	rasta	rasta·	road	
	One is tempted to reconstruct *rasta and say that we get H/a/ before a cluster. But -st- marks it as loan and this item is a borrowing from Persian sources.					
b.	sɔḍɔkɔ	—	—	saṛak	road	*sɔḍɔk- (?).
	This fits into our correspondence, but is a loan from Arabic sources, which may indicate a very early borrowing.					
151.	bali	bali	bali	ba·lu·	sand	*bali
	Hindi final vowel is hard to account for.					
152a.	sagɔrɔ	xagɒr	—	sa·gar	sea	*sagɔr-
b.	sɔmudrɔ	—	šomudro	samudra	sea	
	-dr- indicates borrowing.					
153.	akasɔ	akax	akaš	a·ka·š +a·sma·n	sky	*akas-
	But Hindi /š/ marks this item as a learned borrowing from Sanskrit.					
154.	dhuã	dhɔ̃a	dhɔ̃ã, dhũã	dhũã·	smoke	*dhũã
155.	bɔrɔphɔ	bɒrɒph	bɔrɔp	varfa	snow	(same as 145)
156.	tara, tɔra	tɒra	tara	ta·ra·	star	*tɔra, *tara

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157.	laṭhi	lathi	laṭi	la·ṭhi.	stick (wood)	*laṭhi·
158.	surɟyɔ	xurzzɒ	Šuɟɟo	su·raɟ	sun	
	-rɟy- marks it as borrowing. AB show gemination due to assimilation and Hindi shows reduction of the cluster with a svarabhaktic vowel.					
159.	paṇi	pani	+ɟɔl	pa·ni·	water	*paṇi·
160.	+pɔbɔnɔ	+bɒtah	haoa	hava·, +va·yu	wind	
161a.	ɟɔŋgɔlɔ	+kathɒni	—	ɟangal	woods	*ɟɔngɔl-
b.	bɔṇɔ	—	bon	—	woods	*bɔṇ-
	(Bengali ɔ ~ o alternation).					
162.	bɔrsɔ	bɒsɒr	bɔčor	varš, +sa·l	year	
	-rs- indicates borrowing.					
163a.	cɔndrɔ candɔ	sɒndrɒ	čãd	candrama·	moon	*čand-
	-ndr- forms indicate borrowing.					
b.	jɔnhɔ	zon	—	—	moon	*ɟɔnh-
164.	kaduɔ	+boka	kada	+ki·caṛ	mud	
165.	bɔjrɔ	bɒjrɒ	baɟ	+garjan	thunder	-ɟr- cluster indicate borrowing.
+166.	kakɔrɔ	niɒr	Šišir	os	dew	
167a.	bhor	—	bhor	bho·ṛ	dawn	*bhor
b.	—	uxa	—	uṣa	dawn	
	H/ṣ/ marks this as a sanskrit borrowing.					
168.	ɔndharɔ	andhar	ãdhar	andhe·ra·	darkness	*ɔndh-
169.	+kuḷɔ	par	paḍ	+kina·ra·	bank (river)	*paḍ-
+170.	bruttɔ	ghɛr	gol	gola·	circle	
171.	sɔndhya sɔnjɔ	xɒndhya	Šɔndhɛ	sandhya·	evening	
	-ndhy- cluster indicates borrowing.					
172.	sɔkaḷɔ	+pua	Šɔkal	+sabe·ra·	morning	*sɔkaḷ-
173.	gɔrɔmɔ	gɒrɒm	gɔrom	garmi·	heat	(same as 224)
174.	baṭɔ	bat	—	—	path	*baṭ-
175.	jhɔrɔṇa	+utsɒ	ɟhɔrna	+favva·ra·	spring	*ɟhɔr-
176.	kɔṇɔ	kon	kon	kona·	corner	*koṇ-
	(Oriya low vowel /ɔ/ is due to the following /ɔ/).					
177.	ɟɔnmɔ	zɒnmɒ, zɒnɒm	ɟɔnmo	ɟanma	birth	
	-nm- cluster indicates borrowing.					

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178a.	mɔrɔṇɔ	mɒrɒn	mɔron	—	death	*mɔrɔṇ-
b.	mrutyu	mrittu	mrittu	mrityu	death	
	Initial mr- and medial -ty- mark this as learned borrowing from Sanskrit.					
179a.	Jɔntrɔṇa	—	jɔntɔnna	—	pain	
	-ntr- indicates this to be a learned borrowing.					
b.	dukhɔ	dukh	—	dukh	pain	*dukh-
c.	piḍa	—	—	pi·ṛa·	pain	*pi·ḍa
180.	rɔŋgɔ	rɒŋ	rɔŋ	rang	color	*rɔng-
181a.	sɔŋkhɔ	+dɒlɒŋ	šako	—	bridge	*sɔnkh-
b.	polɔ	—	—	pul	bridge	
+182.	paṭɔ	polɔni	Jɔla	—	swamp	
+183.	siuḷi	xeluɔi	šɛola	—	moss	
184.	bhagɔ	bhag	bhag	bha·g	part	*bhag-
185.	Jaga	+thai	Jaiga	jagah	place	
186.	ɔṇḍa	+kɔni	+ḍim	aṇḍa·	egg	*ɔṇḍ-
187.	maŋsɔ, maũsɔ	maŋxɒ	maŋšo, maš	mã·s	meat	-ŋs- indicate borrowing.
188a.	čaulɔ	saul	čal	ca·val	rice	H/v/ and OA vowel cluster indicate borrowing
b.	bhatɔ	bhat	bhat	bha·t	rice	*bhat-
189.	dudhɔ	+gakhir	dud	du·dh	milk	*du·dh-
190.	mɔida	mɒeda	mɔida	+a·ṭa·	flour	vowel cluster indicates borrowing.
191.	čini	seni	čini	či·ni	sugar	
192.	mɔhu	mɔu	mɔ̃ũ, mɔdhu	madhu	honey	
193.	telɔ	tɛl	tel	te·l	oil	*tel-
194a.	ṣɔkɔḷɔ	xɒkɔlo	—	—	all	*sɔkɔḷ-
b.	sɔbu	—	šɔb	sab	all	*sɔb-
195.	Khɔrapɔ	+bɛa	kharap	+bura·	bad	
	One is tempted to reconstruct *khɔrap as it fits into the regular correspondence pattern, but this is an Arabic loan word.					
196.	bɔḍɔ	bɒr	boḍo	baṛa·	big	*bɔḍ-
197.	kɔḷa	kɔla	kalo	ka·la·	black	
198a.	thɔṇḍa	+xit	ṭhaṇḍa	ṭhaṇḍa	cold (weather)	
	see the initial /th/ correspondence discussion.					
b.	Jaḍɔ	zar	—	ja·ṛa·	—	*Jaḍ-
+199.	mɔiḷa	lɛtɛra	nomra	ganda·	dirty	
200.	sukhila	xukan	šukno	su·kha·	dry	*su·kh-
+201.	ɔnthɔḍa	bhota	mota	muttra·	dull (knife)	

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+202.	ɔlpɔ	kɒm takɒr	kičhu	kuch thoṛa·	few	
203.	bhɔlɔ	bhal	bhalo	+accha·	good	*bhɔll-
204.	sɔbujɔ	xeuzia	šobuj	+hara·	green	*sɔbuj-
205.	bhari	bhari	bhari	bha·ri	heavy	*bhari
206.	bã	baõ	bãdik	ba·yã·	left (hand)	*baN-

(The N stands for indeterminate nasal). If A/õ/ is any indication (ref. 136 where w̃ w̃ m m indicates the change in /m/) we would expect a /m/ here.

207.	lɔmba	+dighɒl	lɔmba	lamba·	long	*lɔmb-
208a.	bɔhutɔ	bɒhut	—	bahut	many	*bɔhut-
b.	ɔnekɔ	—	ɔnek	anek	many	*ɔnek-
+209.	ɔṇɔ osarɔ	thek	šoru	sankra·	narrow	
+210.	pakhɔ	osɒr	kače	pa·s	near	
211.	+nua	nɔtun	notun	+naya·, +navi·n	new	*nɔtun
212.	puruṇa	purɒna	purono	pura·na·	old	
+213a.	rɔŋgɔ	rɒŋa	—	—	red	(see 180)
b.	lal, nali	—	lal	la·l	red	(*lal, (*nal
214.	ṭhik	+xuddhɒ	ṭhik	ṭhi·k	right (correct)	*ṭhi·k
215.	ḍahaṇɔ	+xõ	ḍan	da·yã·	right (hand)	
216a.	pɔča	pɒsa	pɔča	—	rotten	*pɔč-
b.	sɔḍha	—	—	saṛa	rotten	*sɔḍh-
+217.	daḍhua	soka	dharalo	tez	sharp	
218.	čhoṭɔ	+suti	čhoṭo	čho·ṭa·	short	*čhoṭ-
+219.	sanɔ	xɔru	čhoṭo	čho·ṭa·	small	(BH same as 218)
+220.	palis	mihi	tela	čikna·	smooth	
221.	sidha	+pon	+soja	si·dha·	straight	*si·dha
222.	moṭa	+dath	moṭa	mo·ṭa	thick	*moṭ-
223.	pɔtɔḷa	patɒl	patla	patla	thin	
224.	gɔrɔmɔ	gɒrɒm	gɔrom	garm	warm (weather)	
225a.	bhija	—	bhije	bhi·ga·	wet	
b.	tinta	tita	—	—	wet	*tinta
+226.	dhɔḷa	bɒga	šada	safe·d	white	
227.	cɔuḍa	+bɒhɒl	čɔoḍa	cauṛa·	wide	
228.	hɔḷɔdia	hɔlɔdhia	holde	+pi·la·	yellow	
+229.	—	muga	kɔta	bhu·ra·	brown	
230.	niḷɔ	nila	nil	ni·la·	blue	*ni·ḷ-

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231a.	sɔpha	sapha	—	sa·f	clean	
	Borrowing from Perso-Arabic sources. H/f/ gives the clue to suspect borrowing.					
b.	pɔriskarɔ	pɒriskar	pɔriškar	—	clean	
	-sk- indicates it to be loan.					
232.	haluka	+patɒl	halka	halka·	light (weight)	
	cluster marks it as loan.					
233.	uččɔ, unčɔ	+okhɒ	ũču	ũ·ča·	high	*unč-
234.	ničɔ	+sapɒr	niču	ni·ča·	low	*ni·č-
235.	ɔndharɔ	andhar	ãdhar	+ka·la·	dark	(same as 168)
236.	gɔbhirɔ, gɔhirɔ	gɔbhir	gobhir	gahra·	deep	*gɔbhir-
	Hindi loss of vowel in the second syllable is indeterminate. Evidence inadequate to explain loss of stop element in OH.					
237.	miṭha	mitha	miṣṭi	mi·ṭha·	sweet	*mi·ṭha
	Bengali -ṣṭ- marks it as borrowing.					
+238.	uǰvɔḷɔ	pohɒr	čɔkčoke	camki·la·	bright	
+239.	pita	titiki	teto	kaṛua·	bitter	
240.	khali	+xuda	khali	kha·li·	empty	*khali·
241.	bhɔrti	bhɒra	bhorti	+pura·, +pu·rṇ	full	*bhɔr-
242.	gɔribɔ	+dukhia	gorib	gari·b	poor	*gɔri·b-
243a.	dhɔni	dhɔni	—	dhani·	rich	*dhɔni·
b.	bɔḍɔ lokɔ	—	boḍolok	—	rich	*bɔḍ-
+244.	čɔnčɔḷɔ	begi	taratari	tez	fast (quick)	
245.	durbɔḷɔ	durbɒli	durbɔl	durbal	weak	*(dur-) bɔḷ-
+246.	ṭaṇɔ	xɒbɒl	bɔloban	balva·n	strong	
+247.	—	dɛka	ǰuba	ǰava·n	young	
248a.	kɔṭhinɔ	kɔthin	—	—	hard	*kɔṭhin-
b.	kɔṭhorɔ	—	—	kaṭho·r	hard	*kɔṭhor-
c.	sɔktɔ	—	šɔkto	—	hard	
	-kt- marks this as loan.					
249.	nɔrɔmɔ	nɒrɒm	nɔrom	narm	soft	
250.	sundɔrɔ	+dhunia	šundɔr	sundar	pretty (girl)	*sundɔr-
251a.	bɔŋka	bɛ̃ka bɛka	bɛka	—	crooked (not straight)	*bɔnk-
b.	teḍha	—	—	teḍha·	crooked (not straight)	*teḍha

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+252.	bɔḍɔ paṭi	daŋɒr	jore	tez	loud	
+253.	bɔṇua	bɔnɔria	buno	jangli	wild	
254.	posa	pohɔnia	poša	+paltu·	tame	
255a.	aste	—	aste	—	slow	
	-st- cluster marks this as borrowing.					
b.	dhirɔ	dhir	—	+dhi·ma·	slow	*dhir-
256.	ḍhila	dhila	ḍhila	ḍhi·la·	loose	*ḍhi·la
+257.	druḍhɔ	tan	šɔkto	pakka·	firm	
258.	čepṭa	sɛpɛta	čɛpṭa	čapṭa·	flat	
	-pt- indicate borrowing medial vowel correspondence irregular.					
+259.	baje	khɒhɒta	ɔšoman	xurdara·	rough	
260.	sahɔsi	xahɔxi	šahoši	+baha·dur, +šu·r, sa·hasi·	brave	*sahɔs-
261.	ambiḷa	tɛŋa	ṭok	khaṭṭa·	sour	
262a.	ɔndhɔ	—	ɔndho	andha·	blind	*ɔndh-
b.	kɔṇa	kɒna	—	—	blind	*kɔṇa
263a.	kala	kɒla	kala	—	deaf	
b.	bɔdhirɔ	—	—	bahira·	deaf	
	One is tempted to reconstruct *bɔdhir-, sporadic loss of stop element in Hindi. But O/dh/ H/h/ correspondence is unusual and treated as residue.					
264.	lɔŋgɔḷa	lɛŋta	nɛŋta	nanga·	naked	
	May be there were competing forms: *lɔng-, *nɔng-.					
265a.	ɔsusthɔ	—	ɔšustho	—	ill	
	-sth- cluster marks this as borrowing.					
b.	bemarɔ	bɛmari	—	bi·ma·r	ill	
	Persian loan word. Possibly the low vowel O/e/, A/ɛ/ is due to the following /a/.					
266.	ɔdha	adha	adh	a·dha·	half	*ɔddh-
	Initial H/a·/ may be due to loss of cluster (?)					
267.	pačela, pɔč-	pɒka	paka	paka·	ripe	*pɔk-
	B/a/ due to vowel assimilation. O/a/ and k∼c alternation is not possible to explain with this insufficient data.					
+268.	o	aru	o, ebɔŋ	aur	and	
+269.	re, ṭhare	ɒt, t	—	par	at	
270.	karɔṇɔ	karɒn	karon	ka·raṇ	because	*karɔṇ-
271.	jɔdi	zɔdi	jodi	yadi	if	*jɔdi
272.	bhitɔre	bhitɒrɒt	bhetore	bhi·tar	in	*bhi·tɔr
273.	saŋgɔre	+xɔite	šɔŋge	sang, +sa·th	with (accompaniment)	*sɔng-
274.	age	agɛ	age	+pahle·	before	*ag-
275a.	pɔčhe	pisɛ	—	+ba·d	after	(see 276)
b.	pɔre	—	pɔre	—	after	*pɔr-

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276.	pɔčhɔ	pasɒt	pačhe	pi·čhe·	behind	*pɔččh-
	A/i/ in item in 275 and H/i·/ in the cognate here are indeterminate.					
277.	bipɔritɔ	bipɔrit	—	—	opposite	*bipɔrit
278a.	čhɔḍa	+nohoakɔi	čhaḍa	+siva·y	without	*čhɔḍa,
	First vowel assimilated to the second in Bengali.					
b.	bina	—	—	bina·	without	*bina
279.	upɔre	opɒrɒt	upore, opore	u·par	over	*u·pɔr-
280.	tɔḷe	tɒlɒt	+niče	+ni·če·	under	*tɔḷ-
	For BH correspondence see 234.					
+281.	bhitɔrɔ dei	zɒriɒte	moddhedie	dva·ra·	through	
282.	kamuḍiba	kamor	kamḍano	+kha·na·	to bite	
283.	bɔhiba, bohiba	bɒl	bɔoa	bahna·	to blow (wind)	*bɔh-
284.	nisvasɔ neba	+uxah lɒ	niššeš laoa	+sã·s le·na·	to breathe	
	-sv- marks the Oriya item as loan. Bengali is the same item with assimilation of the cluster.					
285.	ǰɔḷiba	zɒl	ǰola	ǰalna·	to burn	*ǰɔḷ-
286.	asiba	ah	aša	a·na·	to come	*as-, *a-
	The distribution of both these forms in not known.					
287.	gɔṇiba	gɒn	gona	+ginana·	to count	*gɔṇ-
288.	kaṭiba	kat	kaṭa	ka·ṭna·	to cut	*kaṭ-
289.	mɔriba	mɒr	mɔre ǰ-	marna·	to die	*mɔr-
290.	khoḷiba	khand	khoḍa	khodna·	to dig	
291.	piiba	pi	+khaoa	pi·na·	to drink	*pi·-
292.	khaiba	kha	khaoa	kha·na·	to eat	*kha-
293.	pɔḍiba	pɒr	poḍa	paṛna	to fall (drop)	*pɔḍ-
294a.	ḍɔriba	dɒra	ḍɔr	ḍarna·	to fear	*ḍɔr-
b.	bhɔyɔ kɔriba	—	bhɔe khaoa	—	to fear	Oriya VS and Bengali VV clusters indicate borrowing.
295a.	lɔḍhiba	—	—	laṛna·	to fight	*lɔḍh-
b.	ǰuddhɔ kɔriba	zuz	ǰuddho k-	—	to fight	*ǰuddh-
296.	bhasiba	+opɒŋ	bhaša	+utara·na·	to float	*bhas-
297.	bɔhiba, bohiba	bɒ	boe ǰ-	bahna·	to flow	(Formally same as 283)
298.	uḍiba	ur	uḍe ǰ-	uṛana·	to fly	*uḍ-
+299.	bɔsiǰiba	got mar	ǰome ǰ-	ǰamna·	to freeze	

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300.	deba	di	deoa	de·na·	to give	*de-
	(There is e∼i alternation in the root in all the languages).					
301.	suṇiba	xun	šona	sunana·	to hear	*suṇ-
302.	piṭiba	piṭ	+gha d-	+ma·rna·	to hit	*piṭ-
303.	dhɔriba	dhɒr	dhora	+pakaṛna·	to hold	*dhɔr-
304.	sikarɔ koriba	sikar kɒr	šikar k-	šika·r k-	to hunt	
	H/š/ indicates this to be loan.					
305.	mariba	mar	mara	ma·rna·	to kill	*mar-
306.	jaṇiba	zan	jana	ja·nana·	to know (facts)	*jaṇ-
307.	hɔsiba	hãh	hãša, hãša	hãsna·	to laugh	*hɔs-
+308.	korei soiba	bagɒr	šoa	le·ṭna·	to lie (on side)	
309.	rɔhiba	—	+thaka	rahna·	to live	*rɔh-
b.	jiiba	zi	—	—	to live	*ji-
310.	kheḷiba	khɛl	khɛla	khe·lna·	to play	*kheḷ-
311.	ṭaṇiba	tan	ṭana	ṭa·nana·	to pull	*ṭaṇ-
	It has been observed while discussing the initial correspondences that Hindi /t/ is questionable.					
312a.	dhɔka deba	—	dhɔkka d-	dhake·lna·	to push	
b.	ṭheliba	thɛl	—	ṭhelna·	to push	*ṭhel-
313.	bɔrsiba, bɔrɔsiba	bɒrɒx	+jɔl h-	barasna·	to rain	
	Oriya -rs- form learned borrowing. Other forms show a svarabhaktic vowel.					
314.	ghɔsiba	ghɒ̃h	ghɔša	+ragaṛna·	to rub	*ghɔs-
	Assamese sporadic nasalisation.					
315.	kɔhiba	kɒ	kɔoa, kɔha	kahna·	to say	*kɔh-
+316.	rampuḍiba	ãsor	acḍano	kharõ·čna·	to scratch	
317.	dekhiba	dɛkh	dɛkha	de·khna·	to see	*dekh-
318a.	sĩba	xi	—	si·na·	to sew	*si·-
b.	silei kɔriba	—	šelɛ k-	silna·	to sew	
319.	gaiba	ga	gaoa, gan k-	ga·na·	to sing	*ga-
320.	bɔsiba	bɒh	bɔša	+baiṭhna·	to sit	*bɔs-
321.	soiba	xo	+ghumɔno	so·na·	to sleep	*so-
322.	suŋghiba	xuŋ	sõka	sũ·ghna·	to smell	*sungh-
+323.	chepɔ pɔkeiba	thua	thutu ph-	thukna·	to spit	

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+324a.	bhagɔ k-	—	bhag k-	—	to split	(see 184)
b.	phaḷɔ k-	phal	—	—	to split	*phaḷ-
c.	čiriba	—	—	či·rna·	to split	*či·r-
+325.	nigaḍiba	sɛp	neɔḍano	ničo·ṛna·	to squeeze	
+326.	čhuri mariba	bɒdh	koča maḍa	bhɔ̃kna·	to stab	
+327.	ṭhia heba	uth	dãḍano	khaṛa· h-	to stand	
328.	čusiba	suh	čoša	ču·sna·	to suck	*ču·s-
329.	phuliba	phul	phula	phu·lna·	to swell	*phu·l-
330.	+pɔhɔ̃riba	xãtor	šãtḍano	+tairna·	to swim	
331.	bhabiba	bhab	bhaba	+so·čna·	to think	*bhab-
+332.	phopaḍiba	dɔlia	čhuḍe ph-	phe·kna	to throw	
333.	bandhiba	bandh	bãdha	bã·dhna·	to tie	*bandh-
334.	olṭeiba, olɔṭeiba	+ohot	ulṭe d-	+muṛna·	to turn	
	-lt- cluster makes us suspect this as a borrowing. Initial vowel correspondence is also aberrant.					
335.	+banti k-	bɔmikɒr-	bomi k-	+ulṭi· k-	to vomit	*bɔmi-
336.	čaliba	+phur	+bɛḍano	čalna·	to walk	
337.	dhoiba	dho	dhoa	dho·na·	to wash	*dho-
338.	+počhi d-	mɒs	mučhe ph-	+miṭa·na·	to wipe	
339.	randhiba	randh	rãdha	+paka·na·	to cook	*randh-
340.	načiba	nas	nača	na·čna·	to dance	*nač-
341.	guḷi mariba	guli mar	guli k-	go·li·m-	to shoot	*goḷi·-
	OAB/u/ in the first syllable followed by /i/ in the second.					
342.	kamɔ kɔriba	kam kɒr	+kaj k-	ka·m k-	to work	*kam-
343.	kandiba	kand	kãda	+čilla·na·	to cry	*kand-
344.	dɔuḍiba	dɔur	+čhoṭa	dauṛna·	to run	*dɔuḍ-
345.	jiba	za	jaoa	ja·na·	to go	*ja-
	Oriya has (J) instead of expected (Ja).					
346.	kiṇiba	kin	kena	+xari·dna·	to buy	*kiṇ-
347a.	bikiba	bik, bɛs	bɛca	be·cna·	to sell	
b.	bikri k-	—	bikri k-	—	to sell	-kr indicates borrowing.
348.	pɔṭheiba	pɒtha	paṭhano	+bhe·jna·	to send	*pɔṭh-
349.	aṇiba	an	ana	+la·na·	to bring	*aṇ-
350.	neba	lɒ	neoa	le·na·	to take	(*ne-, (*le-
351.	arɔmbhɔ k-	arɒmbhɒ kɒr-	arɔmbho k-	+šuru· k-	to begin	*arɔmbh-

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352.	sesɔ k-	xex kɒr-	šeš k-	+sama·pt k-	to finish	*ses-
353a.	dɔḷiba	dɒl	—	dalna·	to grind	*dɔḷ-
b.	pesiba	—	peša	pi·sna·	to grind	*pes-
354.	uttɔrɔ deba	uttɒr di-	uttor d-	uttar de·na·	to answer	*uttɔr-
355.	ḍakiba	+mat	ḍaka	+bula·na·	to call (a person)	*ḍak-
356a.	ǰhuliba	—	—	ǰhu·lna·	to swing	*ǰhu·l-
b.	doḷi kh-	dol	dol-	—	to swing	*doḷ-
357.	buṇiba	bɒ	bona	bunana·	to weave	*buṇ-
	Assamese vowel and loss of the final consonant indeterminate.					
+358.	goḍeiba	khɛd	taḍa k-	pi·cha· k-	to chase	
+359.	loḍiba	lag	dɔrkar poḍa	a·vašyak h-	to need	
360.	pɔhunčiba	+dhukipa	pɔ̃ũčhano	pahũčna·	to reach	*pɔhunč-
361.	nuãiba	+bhaz di-	nɔ̃ãno	+ǰhukna·	to bend	*nũ-
362a.	rɔkhiba	rɒkh	—	—	to defend	*rɔkh-
b.	bɔnčeiba	—	bãčano	bača·na·	to defend	*bɔnč-
363.	bɔḍhiba	+gɒz	baḍa	baḍhna·	to grow	*bɔḍh-
+364.	apɔtti kɔr-	gosɒr di	thɔk lagano	šika·yat k-	to complain	
365.	čɔleiba	sɒla	čalano	—	to steer	*čɔl-
366.	+bisram k-	zira	ǰirono	+a·ra·m k-	to rest	*ǰir-
367.	ghruṇa k-	ghina	ghenna k-	ghriṇa· k-	to hate	
	ghr- initial cluster mark this item as borrowing.					
368.	svɔpnɔ dekh-	xɒpon dɛkh-	šɔpno dɛkha-	svapn de·khna·	to dream	
	sv- marks as learned borrowing.					
369a.	čapiba	sɛp	čap d-	—	to press	*čap-
b.	dabiba	—	—	da·bna·	to press	*dab-
370.	čahiba	+bisar	čaoa	ča·hna·	to want (desire)	*čah-
+371.	čɔḍhiba	uth	čapa	čaḍhna·	to ride	(see 392)
+372.	ghunčiba	sɒl	nɔḍano	hilna·	to move	
+373.	čɔḷeiba	sɒla	egie niej-	le·ǰ-	to lead	(see 365)
+374.	bohiba	kɔrhia	bɔoa	le·ǰ-	to carry	
375.	paiba	pa	paoa	pa·na·	to find	*pa-
376.	hɔreiba	herua	harie ph-	+kho·na·	to lose	*hɔr-
377.	bačhiba	bas	bačha	+čunana·	to choose	*bačh-
378.	bhaŋgiba	bhaŋ	bhaŋga	+to·ṛna·	to break	*bhang-
+379.	uǰvɔlɔ h-	zɒl	čɔkčɔk k-	čamakna·	to shine	

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380.	pariba	par	para	+sakna·	to be able	*par-
381a.	sahaJyɔ k-	—	sahaJJo k-	—	to help	
	-Jy- cluster marks the Oriya item as borrowing.					
b.	sɔhayɔ heba	xɒhae kɒr	—	saha·yta· k-	to help	OH.VS and A. VV clusters indicate borrowing.
382a.	prɔsɔŋsa k-	—	prošɔŋša k-	prasanša·k-	to praise	
	pr- marks as learned borrowing.					
b.	guṇɔ ga-	gun ga-	—	—	to praise	*guṇ-
383a.	Jhuleiba	—	Jhulie d-	—	to hang	(see 356)
b.	lɔṭkeiba	—	—	laṭka·na·	to hang	
	-ṭk- marks it as a loan word.					
+384.	huisil m-	xuhuria	šiš d-	si·ti· baja·na·	to whistle	
385.	kasiba, khasiba	kah	kaša	khā·sna·	to cough	*kas-.
	Sporadic aspiration (?) in Oriya.					
+386.	dirghɔ nisvasɔ m-	humuniah	sok k-	karahna·	to sigh	
387.	dekheiba	dekhua	dɛkhano	dikha·na·	to show	*dekh-
+388a.	rɔhiba	rɒ	—	—	to wait	(see 309)
b.	ɔpekhya k-	ɔpekhya kɒr-	ɔpekkha k-	+pratikṣa· k-	to wait	
	-khy- cluster mark this as borrowing.					
389.	ḍhaḷiba	+bak	ḍhala	ḍalna·	to pour	
390.	hai mariba	+hamia	haitola	+jãbha·i· l-	to yawn	
391.	+uṭhiba	zag	Jaga	Ja·gna·	to wake	*Jag-
392a.	čɔḍhiba	—	čɔḍa	čaḍhna·	to climb	*čɔḍh-
b.	uṭhiba	uth	oṭha	—	to climb	(see 398)
+393.	guruṇḍiba	sosɒr, bɒga	hama d-	rẽgna·	to crawl	
394a.	buḍiba	bur	—	—	to sink	*buḍ-
b.	ḍubiba	—	ḍube J-	ḍu·bna·	to sink	*ḍu·b-
395a.	—	lɒr	naḍano	—	to shake	*lɔḍ, *nɔḍ
b.	hɔleiba	—	—	hila·na·	to shake	*hɔl-
396.	čhuĩba	so	čhoa	čhu·na·	to touch	*čhu·-
397.	meleiba	mɛl	+baḍano	+ta·nana·	to stretch	*mel-
398.	uṭheiba	+daŋ	+tule dhora	uṭha·na·	to raise	*uṭh-
+399.	gɔḍhiba	xaz	toiar k-	bana·na·	to build	

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400a.	thoiba	thɒ	—	—	to put	*th-
	indeterminate vowel.					
b.	rɔkhiba	—	rakha	rakhna·	to put	*rɔkh-
	Reconstruction of this form implies that Bengali is a case of vowel assimilation.					
+401.	pɔčariba	xodh	ǰiggãša k-	pu·čhna·	to ask	
402.	česṭa k-	sɛsta kɒr-	češṭa k-	+prayatn kar	to try	
	-sṭ- cluster mark this item as borrowing.					
+403.	buliba	phur	bɛḍano	ya·tra· k-	to travel	
404a.	bhɔrti k-	—	bhorti k-	—	to fill	} *bhɔr-
b.	—	bhɒra	—	bharna·	to fill	
405.	pɔḷeiba	pɒla	palie ǰ	+bha·gna·	to flee	*pɔḷ-
406a.	lučiba	luka	lukie rakha	—	to hide	(*luk-, (*luč-
b.	čhɔpiba	—	—	čhipna·	to hide	
	See discussion (6) of /ɔ/ correspondence.					
407a.	tyagɔ k-	tyag kɒr	—	—	to sacrifice	
	ty- cluster indicates loan.					
b.	bɔḷi d-	—	boli d-	bali d-	to sacrifice	*bɔḷi
+408.	mučuki hɔsiba	hãh	haša	muskura·na·	to smile	(see 307)
409.	mapiba	+zokh	mapa	ma·pna·	to measure	*map-
410.	badha d-	badha di	badha d-	+aṭka·na·	to hinder	*badha
411.	miseiba	mihɒla	mešano	+mila·na·	to mix	*mis-
412.	smɔrɔṇɔ k-	xõwɒr	šoron k-	+ya·d k-	to remember	
	sm- indicates this item to be a loan.					
413a.	rajɔtvɔ k-	—	rajɔtto k-	—	to rule	
	-tv- indicates this item to be a loan.					
b.	sasɔnɔ k-	xaxɒn kɒr	—	ša·san k-	to rule	
	H/š/ indicates this as learned borrowing.					
414.	čhaḍiba	+ɛr	čhaḍa	cho·ṛna	to leave	*čhaḍ-,
				vowel in Hindi is indeterminate.		
415.	čaṭiba	+sɛlɛk	čaṭa	—	to lick	*čaṭ-
416.	goṭeiba	gota	+ǰogaḍk-	+ikṭṭha· k-	to gather	*goṭ-
+417.	sukhiba	arogyɒ hɒ-	koretola	accha·h-	to heal	
+418.	ɔnusɔrɔṇɔ k-	pas lɒ-	pičhone ǰ-	pi·che· calna·	to follow	
419.	čori k-	sur kɒr-	čuri k-	čura·na·	to steal	*čor-
	Hindi has u ~ o alternation in the stem (cori·karna·).					
+420.	ǰhaḷeiba	srɒm kɒr	ghama	pasi·na· a·na·	to sweat	

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421.	ḍhaŋkiba	dhak	ḍhaka d-	ḍhăkna·	to cover	*ḍhank-
+422.	meleiba	mεl	čhodie d-	bičha·na·	to spread	(see 397)
423.	giḷiba	gil	gela	nigalna·	to swallow	*giḷ-
	H. form is not clear.					
424.	khojiba	+bisar	khoja	kho·jna·	to look for	*khoj-
425.	ekɔ	εk, ek	εk	ek	one	*ek-
426.	dui	dui	dui	do·	two	vowel cluster not reconstructible.
427.	tini	tini	tin	ti·n	three	*ti·n-
428.	čari	sari	čar	ča·r	four	*čar-
429.	pančɔ	pas, pãs	pãč	pã.č	five	*panč-
430.	čhɔ	sɒ, sɒe	čhoe	čhe·, čhai	six	*čhɔ-
431.	satɔ	xat	šat	sa·t	seven	*sat-
432.	aṭhɔ	ath	aṭ	a·ṭh	eight	*aṭh-
433.	nɔ	nɒ	nɔe	nau	nine	*nɔ-
434.	dɔsɔ	dɒh	dɔš	das	ten	*dɔs-
435a.	koḍie	kuri	kuḍi	—	twenty	*koḍi-
b.	—	bis	—	bi·s	twenty	*bi·s
436.	sɔhɔ	xɒ	šɔ	sau	hundred	*sɔ-
437.	se	xi	še, +tini	+vah	he	
+438.	mũ	mɒe	ami	mãĩ	I	
439.	kičhi	kisuman	kičhu	kučh	some	
440.	seiṭa	xeito	+oṭa	+vah	that	*se-
+441.	semane	xihɔ̃t	taara	ve	they	
442.	eiṭa	eito	eṭa	+yah	this	*e-
443.	tume	tumi	tumi	tum	thou	*tum-
444.	ame	ami	amra	+ham	we	*am-
+445.	tume mane	toma lok	tomra	a·p	you (pl)	
+446.	moorɔ	mor	amar	me·ra·	my	
+447.	toorɔ	tomar, tor	tomar	te·ra·	your (sg)	
+448.	tumɔ manɔŋkrɔ	tomalokɒr	tomader	tumha·ra·	your (pl)	
+449.	amɔ manɔŋkɔrɔ	amar	amrader	hama·ra·	our	
+450.	sema nɔŋkɔrɔ	xihɔ̃tɒr	taader	unka·	their	
+451.	taarɔ	tar	tar, tahar	uska·	his	
+452.	se stri lokɔrɔ	tair	tar, tahar	uska·	her	
+453.	se stri lokɔ	tai	še, o, tini	vah	she	

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+454.	eṭhare	iat	ekhane	yahā·	here	
455.	durɔ	dur	dur	du·r	far	*du·r-
+456.	kemiti	kɛnɛkɔi	kɛmon kore	kaise·	how	
457.	nahī	nai, nɛ	na	nahī·	not	

It is clear that more than one morpheme is involved here. The negative particle *nɔ- and something which follows and gives us ABH/a/, which is difficult to determine with this data. For the controversy of reconstruction of this item, Ref. SKC, ODBL, p. 1039, and Turner, Nepali dictionary p. 337 under nahī.

+458.	seṭhare	tat	okhane	vahā·	there	
+459.	kɔɔṇɔ	ki	ki	kya·	what	
+460.	ketebeḷe	ketia	kɔkhon	kab	when	
+461.	keũṭhare	kɔt	kothɛ	kahā·	where	
+462.	kie	kon	ke	kaun	who	
+463.	upɔrɔ	ɒpɒrɒt	opɔr	u·par	up	(see 279)
+464.	tɔḷɔ	tɒlɒt	niču	ni·če·	down	(see 280)
+465.	bɔrtɔmanɔ	etia	ɛkhon	ab	now	
+466.	tahahele	tetia	tɔkhon	tab	then	
467.	aǰi	azi	aǰ	a·ǰ	today	*aǰ-
468.	baharɔ	bahir	bar, baire	ba·har	outside	

O/a/ in the second syllable may be due to the assimilation of the vowel with the one in first syllable or because of confusion between two competing items *bahɔr and *bahar, on the basis of AB one may posit a third form *bahir. We have seen from the h- correspondences that there is no consistency in the loss of -h- in various languages.

+469.	bhitɔrɔ	bhitɒrɒt	bhetor	bhi·tar	inside	(see 272)
470.	kali	kailɔi (472) kali	kal	kal	tomorrow	*kɔll- (see 472)
471.	eka	+ɒkɒle	ɛka	+ake·la·	alone	*ek-

(see 425) In Assamese some kind of metathesis or stem vowel alternation is involved, which is not clear.

472.	kali	kal	kal	kal	yesterday	*kɔll- (see 470)
+473a.	bɔhutɔ	bɒhut	—	—	much	(see 208)
b.	besi	—	beši	—	much	*besi
c.	ɔdhikɔ	—	adhik	adhik	much	*ɔdhik-
474.	mɔǰhi	maz	maǰ, mɔddho	+bi·č	middle	*mɔǰǰh-
475.	nã	nam	nam	na·m	name	*nam-
476a.	—	rɔsi	—	rassi·	rope	*rɔssi·
b.	dɔuḍi	—	dɔḍi	—	rope	
477.	+lugapɔṭa	kapor	kapoččopɔr	kapṛa·	clothing	

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+478.	maṭhia	kɒlɒh, patrɒ	kuJol	ghaṛa·	jar (water)	
479.	ghɔrɔ	ghɒr	+baḍi	ghar	house	*ghɔr-
+480.	dipɔ	lɛm	lɔmpo	la·lṭe·n	lamp (oil)	
481a.	duarɔ	duar	dar	dva·r	door	
b.	—	—	dɔrJa, dɔJJa	darva·za·	door	
	-rJ- in Bengali and -rvaz- in Hindi indicate borrowing.					
482.	khiḍiki	khiriki	+ahla	khiṛki·	window	
483.	kačɔ	kas	kač	kā·č	glass	*kač
	H. nasalisation is sporadic. No evidence in any other language for a nasal.					
484.	čɔkɔ	sɒka	čaka	čakr	wheel	*čɔkk-
485a.	gaḍi	—	gaḍi	ga·ṛi·	waggon	*gaḍi·
b.	ḍɔba	daba, dɒba	—	ḍibba·, ḍabba·	waggon	*ḍɔbb-
486.	ḍholɔ	dhol	ḍhol	ḍho·l	drum	*ḍhol-
487.	+mudi	aŋɒthi	aŋṭi	ā̃gu·ṭhi·	ring	
488.	ghiɔ	ghi, ghī, ghĩũ	ghi	ghi·	ghee	*ghi·-
489.	dhɔnu	dhenu, dhɔnu	dhonuk	dhanuṣ	bow (weapon)	*dhɔnu-
490.	gā̃	gā̃	gā̃	gā̃v	village	*gam-
	The labial consonant in H indicate the labiality of the nasal.					
491.	čhuri	suri	čhuri	čhuri, +ča·ku	knife	*čhuri
492a.	hɔḷɔ	hal	—	hal	plow	
	Reconstructing *hɔl- would not explain A/a/. *hɔll- does not explain the retroflexion in Oriya, but explains Assamese vowel. More data required on this point.					
b.	lɔŋgɔḷɔ	naŋɒl	laŋɔl	—	plow	(*lɔngɔḷ- (*nɔngɔḷ-
+493.	da	kasi	kašte	hā̃siya·	sickle	
494.	suta	xuta	šuto	su·t, +dha·ga.	thread	*su·t-
+495.	ṭaŋgia	kuthar	kuḍul	kulha·ṛi·	axe	
496.	khetɔ	+pɒthar	khet	khe·t	field	*khet-
497.	khɔṭɔ	khat	khaṭ	kha·ṭ	cot	
498.	čhunči	+bezi	čhuč	+sui·	needle	*čhunč-
499.	phɔsɔlɔ	+kheti	phɔsol	+la·k	harvest	*phɔsɔl
+500.	khɔradinɔ	zɒh	gɔrom kal	garmi·	summer	
501.	sitɔ	xit	šit	+sardi·	winter	*sit-
+502.	ul	ul	ul	u·n	wool	

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+503.	pania	phɔni	čiruni	kangha·	comb	
504a.	čaḷɔ	sal	—	—	roof	*čaḷ-
b.	čhatɔ	—	čhat	čhat	roof	*čhɔtt-
+505.	luga	kapor	kapoḍ	kapṛa·	cloth	(see 477)
+506.	karɔṇɔ	karɒn	ǰukti	ka·raṇ	reason	} (same as 270)
+507.	karɔṇɔ	karɒn	karon	ka·raṇ	cause	
+508.	bujhiba sakti	buzapɒra	čukti	samaǰh	understanding	
509.	masɔ	mah	maš	ma·s	month	*mas-
+510.	mɔne rɔkhiba	smɒrɒn	šrīti	ya·d	memory	
511.	ǰahaǰɔ	zahaz	ǰahaǰ	ǰaha·z	ship	
	H/z/ gives us reason to suspect this item as loan. This is an Arabic loan. The same vowel in both the syllables in OAB may be due to vowel assimilation.					
512.	bɔsa	bah	baša	+ghõsla·	nest	*bɔsa
523.	kɔriba	kɒr	kora	karna·	to do	*kɔr-
545.	hɔba	hɒ	hɔoa	ho·na·	to become	*ho-

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